

## POLICY RESEARCH WORKING PAPER

WPS 2008

2008

# Volatility and Contagion in a Financially Integrated World

## Lessons from East Asia's Recent Experience

*Pedro Alba**Amar Bhattacharya**Stijn Claessens**Swati Ghosh**Leonardo Hernandez*

Recent events in East Asia highlighted the risks of weak financial institutions and distorted incentives in a financially integrated world. These weaknesses led to two sources of vulnerability: East Asia's rapid buildup of contingent liabilities, and overreliance on short-term foreign borrowing.

The World Bank  
Poverty Reduction and Economic Management Network  
Economic Policy Unit  
November 1998



## Summary findings

The buildup of vulnerabilities in East Asia is shown here to be mainly the result of weaknesses in financial intermediation, poor corporate governance, and deficient government policies, including pro-cyclical macroeconomic policy responses to large capital inflows.

Weak due diligence by external creditors, fueled partly by ample global liquidity, also played a role but global factors were more important in triggering the crises than in causing them.

The crisis occurred partly because the economies lacked the institutional and regulatory structure to cope with increasingly integrated capital markets. Trouble arose from private sector decisions (by both borrowers and lenders) but governments created incentives for risky behavior and exerted little regulatory authority. Governments failed to encourage the transparency needed for the market to recognize and correct such problems as unreported mutual guarantees, insider relations, and nondisclosure of banks' and companies' true net positions.

Domestic weaknesses were aggravated by poorly disciplined foreign lending. The problem was not so much overall indebtedness as the composition of debt: a buildup of short-term unhedged debt left the economies vulnerable to a sudden loss of confidence.

The same factors made the crisis's economic and social impact more severe than some anticipated. The loss of confidence directly affected private demand — both investment and consumption — which could not be offset in the short run by net external demand.

The effect on corporations and financial institutions has been severe because of the high degree of leveraging and the unhedged, short-term nature of foreign liabilities, which has led to a severe liquidity crunch. Domestic recession, financial and corporate distress, liquidity constraints, and political uncertainty were self-reinforcing, leading to a severe downturn.

---

This paper — a joint product of the Economic Policy Unit, Poverty Reduction and Economic Management Network and the Central Bank of Chile — was presented at the CEPR/World Bank conference “Financial Crises: Contagion and Market Volatility,” May 8–9, 1998, London, and at the PAFTAD 24 conference, “Asia Pacific Financial Liberation and Reform,” May 20–22, 1998, in Chiangmai, Thailand. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Debbie Fischer, room MC4-168, telephone 202-473-8656, fax 202-522-1135, Internet address [dfischer@worldbank.org](mailto:dfischer@worldbank.org). Pedro Alba may be contacted at [palba@worldbank.org](mailto:palba@worldbank.org). November 1998. (63 pages)

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent.*

## **Volatility and Contagion in a Financially-Integrated World: Lessons from East Asia's Recent Experience**

By Pedro Alba\*, Amar Bhattacharya\*, Stijn Claessens\*,  
Swati Ghosh\*, and Leonardo Hernandez\*\*

World Bank\* and Central Bank of Chile\*\*

Recent events in East Asia have highlighted the risks of financial structures in a financially integrated world. This paper documents that the buildup of vulnerabilities in East Asia was mainly the result of weaknesses in domestic financial intermediation, poor corporate governance, and deficient government policies, including poor macro-economic policy responses to large capital inflows. Weak due diligence by external creditors, in part fueled by ample global liquidity, also played a role in building up vulnerabilities, but global factors were more important in triggering the crises than in causing them. In spite of these policies and weaknesses, we argue, however, that for most East Asian countries a large financial crisis was not "inevitable," but was mainly triggered by spillovers from nearby countries. Differences between countries, both in degree of vulnerability and depth of crisis, support this conclusion. The paper concludes with some lessons for other countries.

---

Paper presented at the PAFTAD 24 conference, "Asia Pacific Financial Liberalization and Reform", May 20-22, 1998, Chiangmai, Thailand, hosted by School of Development Economics, NIDA, in collaboration with PAFTAD International Steering Committee. This paper has really been a group effort. We would like to thank Jos Jansen and Peter Montiel for very useful contributions, Sergio Schmukler for his insights, Michael Dooley, the discussant, Akira Kohsaka, and seminars participants for comments, and the PAFTAD steering committee for guidance. This paper draws on and extends the analysis in the joint-World Bank-ADB study: *Managing Global Financial Integration In Asia: Emerging Lessons and Prospective Challenges*, March 10-12, 1998, for comments. The opinions expressed do not necessarily reflect those of the World Bank or of the Central Bank of Chile.

## **I. Introduction**

Private capital flows to developing countries increased six-fold over the years 1990-1996. These large inflows are not simply an independent and isolated macroeconomic shock for these countries to manage. They are rather the manifestation of a structural change in the world economic environment, in the form of a transition by many countries from near financial autarky to fairly close integration with world capital markets. The capital inflow phenomenon, and the associated need to address the potential macroeconomic overheating, were the direct products of the transition between these polar financial integration regimes. In the new, more integrated environment, however, capital could potentially flow out as well as in. Key challenges facing newly financially integrated countries concern not just how to manage large inflows, but also how to reduce vulnerability to the potentially disruptive effects of sudden and massive capital outflows.

Countries in East Asia were at the forefront of the worldwide movement toward increased financial integration (see World Bank, 1997). East Asian countries fared quite well during the initial inflow stage of this financial integration process, especially in comparison with many countries outside the region. Indeed, in many ways lessons to be applied elsewhere regarding the appropriate adjustment to large capital inflows have been drawn from the experiences of East Asia. Countries in the region also weathered the storm associated with the Mexican currency crisis of December 1994 in relatively good form, suggesting that the policies they adopted to manage inflows also proved effective in rendering these economies relatively less vulnerable to a financial shock that created serious disruptions elsewhere.

Nonetheless, in the summer of 1997 it became evident that this view could no longer be sustained. The crisis that struck Thailand and the rapidity with which it spread to other countries in East Asia, suggested that all was not well. The extent of the subsequent fallout has been surprisingly large and the crisis has also been deeper and more protracted than many had anticipated. The issues that arise in connection with the crisis are first and foremost to examine what went wrong, and second to determine what policy implications the currency crisis holds. Was East Asia inevitably doomed to undergo the crisis? Or was it mainly due to its rapid financial integration and the functioning of global financial markets? The answers to these questions matter, of course, not just for the design of future policies in countries in East Asia afflicted by the new crisis, but also for countries elsewhere that more recently have embarked on the road to financial integration.

This paper examines the factors that led to the proximate causes of the crisis, the spillovers, and the depth of the crisis. It then draws some implications for the immediate and longer-term agenda in managing financial integration. In section 2, we provide an overview of capital flows and macroeconomic developments in the region. This way we set the stage for a discussion of the factors and processes that made countries vulnerable and the buildup of vulnerabilities in section 3. Section 4 discusses the evolution of the crisis and the spillovers, and why the crisis has been so protracted. Section 5 focuses on the immediate agenda in the aftermath of the crisis and explores the medium-term policy agenda.

## **II. Overview of Capital Flows and Macroeconomic Developments**

**Magnitude and Composition of Capital Inflows.** Table II.1 shows that East Asia led the developing world in the resurgence of private capital flows in the late 1980s. It quickly emerged as the most important destination for private capital flows and its share of total capital flows to developing countries increased from 12% in the early 1980s to 43% during the 1990s. During this period, the composition of flows to East Asian countries also changed. In the second half of the 1980s, commercial bank lending was replaced by FDI. In recent years, portfolio flows (both bond and equity) expanded rapidly as did short-term borrowing (see Table II.1), and portfolio flows amounted to 3.4% of GDP during 1993-96, and short-term borrowing an additional 2.3% of GDP. Whereas the dominant role of FDI distinguished East Asia from Latin America in the late 1980s and early 1990s, in the more recent period borrowing was much more skewed towards short-term flows than was the case for Latin America.

Another important characteristic of private capital flows to East Asia was that, unlike Latin America, it was preceded rather than followed by a surge in investment (Table II.1). In the second half of the 1980s and the early 1990s, the bulk of the increase in investment was financed by a corresponding increase in national savings (Figure II.1). During the more recent period, however, a much higher fraction of the increase in investment was financed abroad. Nevertheless, the magnitude of private capital flows was much higher than the amount of foreign savings absorbed leading to substantial reserve accumulation (see Figure II.1) and associated with some private sector capital outflows. There was considerable variation, however, at the individual country level: Malaysia and Thailand received the largest magnitude of capital inflows, in excess of 30% of GDP; the Philippines also received substantial inflows during 1993-96; but Korea did not receive more than 15% of GDP.

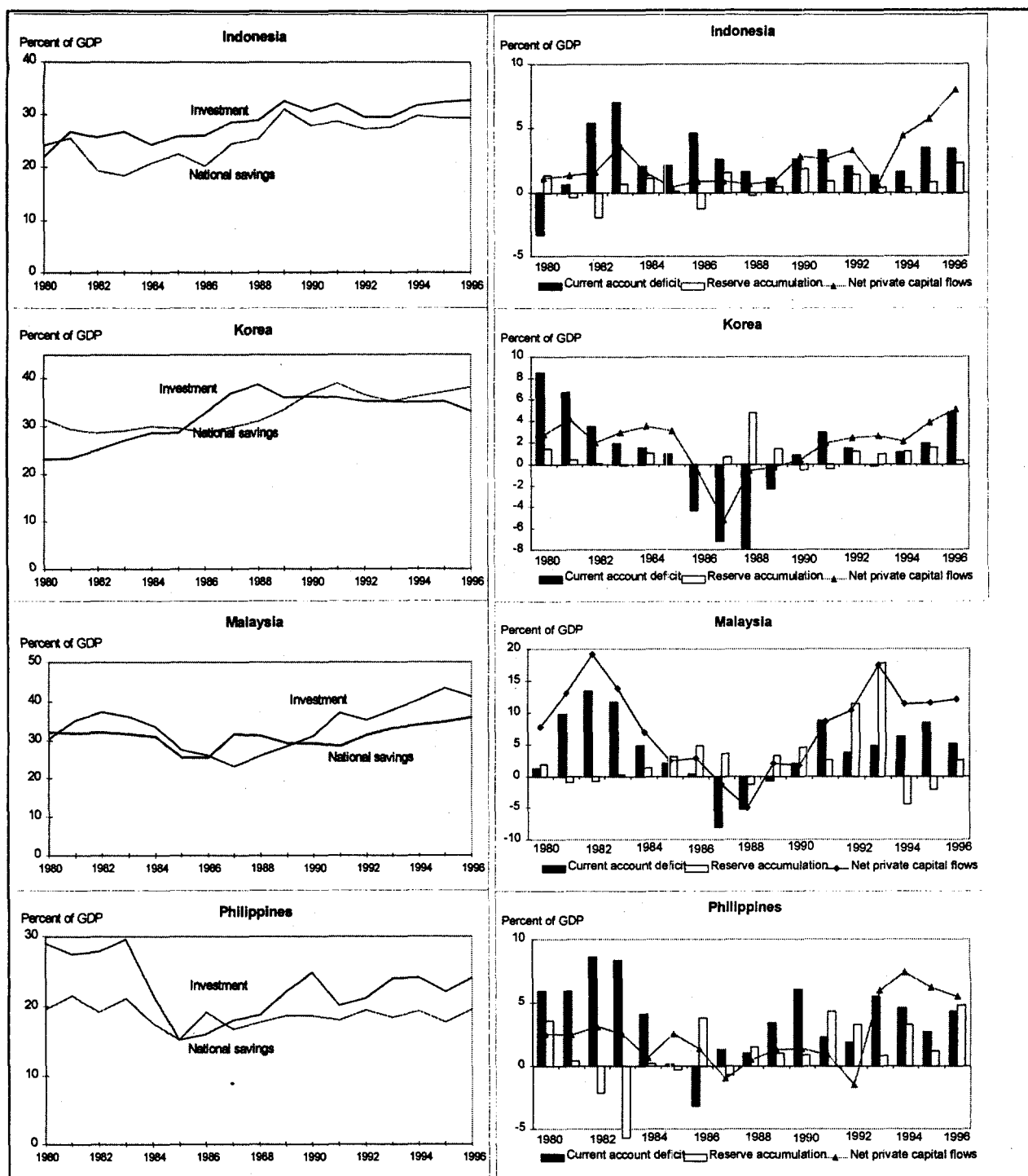
**Table II.1 Magnitude and Composition of Capital Inflows  
(% of GDP)**

	<i>East Asia</i>			<i>ASEAN-4</i>		
	85-88	89-92	93-96	85-88	89-92	93-96
Net long-term capital flows	1.4	3.0	6.2	2.0	4.8	6.9
- Net official flows	0.4	0.6	0.4	1.2	1.3	0.4
- Net private flows	1.0	2.4	5.8	0.8	3.5	6.6
Bank/trade lending	0.0	0.7	0.7	-0.3	0.9	0.8
Portfolio bond	0.3	0.1	1.0	0.2	-0.1	1.4
FDI	0.7	1.3	3.0	0.9	2.3	2.4
Portfolio equity	0.0	0.2	1.1	0.1	0.4	2.0
IMF credit	-0.1	-0.1	0.0	-0.1	-0.1	0.0
Other private flows	-0.4	-0.5	-1.9	0.3	2.0	-0.1
of which: short-term debt	0.2	0.7	0.9	0.1	2.0	2.3
	<i>South Asia</i>			<i>LAC</i>		
	85-88	89-92	93-96	85-88	89-92	93-96
Net long-term capital flows	2.2	1.9	2.6	1.3	1.7	4.3
- Net official flows	0.9	1.1	0.4	0.5	0.3	0.0
- Net private flows	1.3	0.8	2.1	0.8	1.4	4.4
Bank/trade lending	1.1	0.5	0.4	0.3	0.0	0.5
Portfolio bond	0.1	0.2	0.0	-0.2	0.2	1.2
FDI	0.1	0.1	0.6	0.7	0.9	1.6
Portfolio equity	0.0	0.1	1.1	0.0	0.3	1.1
IMF credit	-0.4	0.2	-0.1	0.0	0.0	0.1
Other private flows	0.0	0.3	0.6	-0.7	0.7	-1.0
of which: short-term debt	0.4	0.1	-0.2	-0.1	0.7	0.6

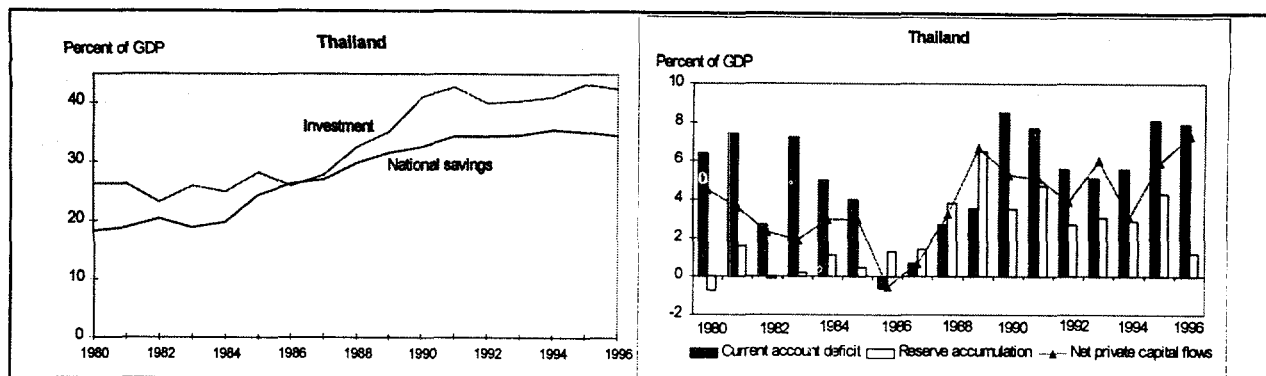
**Table II.2 Investment, Savings and Capital Flows  
(% of GDP)**

	<i>East Asia</i>			<i>ASEAN-4</i>		
	<i>85-88</i>	<i>89-92</i>	<i>93-96</i>	<i>85-88</i>	<i>89-92</i>	<i>93-96</i>
Investment	32.1	34.9	38.2	25.7	32.6	35.0
National Savings	31.6	34.0	36.1	23.9	28.6	30.3
- Private	24.5	28.3	30.2	13.2	20.0	20.4
- Public	4.8	5.8	5.9	3.3		
Current Account Deficit	0.2	0.8	1.9	1.1	3.8	4.6
Total Capital Inflows	0.6	1.9	3.9	2.2	6.7	6.8
Reserve Accumulation	0.7	1.6	2.3	1.0	2.9	2.2
	<i>South Asia</i>			<i>LAC</i>		
	<i>85-88</i>	<i>89-92</i>	<i>93-96</i>	<i>85-88</i>	<i>89-92</i>	<i>93-96</i>
Investment	21.9	23.6	23.6	20.5	20.6	20.1
National Savings	19.8	21.2	21.9	20.6	19.6	17.6
- Private	18.4	20.2	20.9	16.5	16.2	15.1
- Public	1.4	1.0	1.0	4.1	3.3	2.5
Current Account Deficit	2.3	2.3	1.7	1.0	1.1	2.4
Total Capital Inflows	1.9	2.4	3.0	0.7	2.4	3.5
Reserve Accumulation	-0.4	0.1	1.3	-0.3	1.3	1.0

**Figure II.1 Trends of Investment, Savings, Current Account Deficits, Reserve Accumulation and Private Capital Inflows**







**Macroeconomic Policies During the Early Inflow Period.** The macroeconomic strategy in East Asian countries during the early inflow period had two characteristics. First, an exchange rate regime oriented toward enhanced competitiveness, i.e., the achievement of a real exchange rate target to complement the outward orientation embodied in structural policies. This policy was implemented through step devaluations in the currencies of several countries in the region during the mid-1980s, followed in some countries by continuous depreciation, in some cases more than offsetting the differential between domestic and foreign inflation. In East Asia, therefore, unlike in many countries of South America, nominal exchange rate management during the capital inflow episode was not primarily devoted to the establishment of a nominal anchor. This exchange rate policy indeed seems to have been relatively successful in avoiding currency overvaluation over the decade spanning the mid-80s to the mid-90s.

The second macroeconomic component was the adoption of a tight medium-term stance for fiscal policy. Overall public sector budgets in the region, which had exhibited deficits not out of line with those which characterized other middle-income developing countries at the same time, moved steadily into surplus after mid-eighties. As the economies of these countries grew and the tight fiscal stance restrained and at times reversed the growth of public-sector debt, public-sector debt-to-GDP ratios fell throughout the region, which coincided with the arrival of capital inflows. By the mid-1990's, several countries in East Asia had achieved sizable fiscal surpluses and ratios of debt to GDP substantially below those of many industrial countries. This fiscal stance also promoted the depreciation of the long-run equilibrium real exchange rate, which favored not only tradable goods relative to nontradables, but also prevented the emergence of exchange rate misalignment in the form of undervaluation of the domestic currency.

Overall, then, the macroeconomic policy mix pursued can be characterized as one in which the nominal exchange rate was assigned to a competitiveness objective, while fiscal policy was assigned the objective of price level stabilization. Other policies, of both structural and stabilization dimensions, that were being pursued simultaneously, however, turned out to have important implications for subsequent events. On the structural side, the economies of East Asia continued the process of liberalization that had begun in the mid-80s. Trade liberalization, capital account liberalization, and especially financial sector liberalization, all proceeded during the inflow period. On the stabilization side, countries placed heavy reliance on monetary policy as a short-run stabilization instrument, varying the intensity of sterilized intervention in the foreign exchange market in accordance with domestic macroeconomic needs.

This mix of structural and macroeconomic policies proved at once attractive to foreign capital—and thus was associated with large capital inflows—and, in combination with tight monetary policy, was largely successful in preventing the emergency of macroeconomic overheating, at least early in the inflow period. Most importantly, across countries an important correlation existed during the capital-inflow period between the avoidance of excessive real exchange rate appreciation and a mix of aggregate demand oriented toward investment rather than consumption (Table II.3). This link can be interpreted naturally as the outcome of the policy mix undertaken. Since the effects of tight money tend to fall disproportionately on investment, an outward-oriented strategy in which tight fiscal policy supports a depreciated real exchange rate exerts a systematic effect on the composition of aggregate demand favoring investment over consumption.

**Table II.3 Disposition of Capital Inflows during Inflow Episodes**  
(% of GDP, except for columns 7 and 8 which are in percent)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Country	Inflow Period	Net Private Inflows	Net Official inflows	Current Account Deficit	Reserve Accum.	Change in current Account	Change in reserve Accum.
East Asia							
China	1993-96	2.65	0.35	1.04	1.96	34.7	65.3
India	1992-96	1.03	-0.58	-1.05	1.51	-231.1	331.1
Indonesia	1990-96	2.22	-1.08	0.14	1.00	12.2	87.8
Korea	1991-96	5.10	0.59	6.17	-0.48	108.5	-8.5
Malaysia	1989-96	8.08	0.11	6.05	2.14	73.9	26.1
Pakistan	1992-96	2.60	0.31	1.90	1.00	65.4	34.6
Philippines	1990-96	5.38	-0.65	3.37	1.36	71.3	28.7
Thailand	1988-96	6.72	-1.19	2.81	2.72	50.8	49.2
Other countries							
Argentina	1991-94	2.13	0.11	1.03	1.21	45.9	54.1
Brazil	1992-96	2.65	-0.01	0.80	1.84	30.5	69.5
Chile	1989-96	1.46	-3.38	-4.19	2.28	219.3	-119.3
Colombia	1992-96	5.20	-0.83	4.81	-0.44	110.0	-10.0
Mexico	1989-95	4.93	0.46	5.03	0.37	93.2	6.8
Peru	1990-96	4.75	0.04	2.11	2.68	44.0	56.0

Columns 3-6: average during inflow period minus average during the immediately preceding 5-year period.

Column 5: a minus sign means an improvement in the current account balance.

Column 6: a minus sign means a decrease in reserve accumulation.

Column 7: column 5 as a percentage of the sum of columns 3 and 4.

Column 8: column 6 as a percentage of the sum of columns 3 and 4.

Source: World Bank data; IMF, *International Financial Statistics*.

**Reversal in Capital Flows.** The financial crisis has led to a sharp reversal of net private capital flow, since mid-1997 to East Asian countries, both on account of foreign lenders and domestic corporates. Whereas new international lending fell sharply in the second half of 1997, the main source of the turnaround in private capital flows was the reluctance of international banks to roll over the large volumes of short-term debt and the push by domestic corporates to cover their unhedged positions. By the fourth quarter of 1997, new international bond issues and loan commitments were 60% lower than the corresponding period of 1996. Altogether net private capital flows to the five countries most affected by the crisis—Korea, Indonesia, Malaysia, Philippines and Thailand—are estimated to be more than \$100 billion less in 1997 than in 1996, and all of that decline took place in the second half of 1997 (World Bank, 1998).

### III. What Caused the Crisis?

There are two important questions regarding the East Asia financial crisis: first, why did the crisis occur; and, second, why has the crisis been so protracted. There are many explanations and typologies that have been put forward to explain the financial crisis in East Asia. Corsetti, Pesenti, and Roubini, 1998, Feldstein, 1998, IMF, 1997, Krugman, 1998, and Radelet and Sachs, 1998a and 1998b, Sachs, Tornell and Velasco, 1996, among others, provide typologies of different types of financial crises that may be applicable to East Asia. Box III.1 presents the typology of financial crises as identified by Radelet and Sachs (1998a).

#### Box III.1 Types of Financial Crises

Radelet and Sachs, 1998a, provide the following typology of financial crises:

1. Macro-economic policy induced: basically, the financial crisis is the result of the pursuit of a set of inconsistent macro-economic policies. This includes the case of a Krugman (1979) type balance of payment crisis, where the exchange rate collapses as domestic credit expansion by the central bank is inconsistent with the exchange rate target, as well as the type of self-fulfilling crises of Obstfeld, 1986 and 1996. This explanation presumably also includes the presence of some structural weaknesses (e.g., declines in competitiveness as a result of poor labor upgrading, weak financial systems) which make macro-policies more likely inconsistent to begin with.
2. Financial panic: the country is subject to the equivalent of a run on a bank (Diamond and Dybvig, 1983) where creditors, particularly those with short-term claims, suddenly withdraw from the country, leaving the country with an acute shortage of foreign exchange liquidity. The withdrawal may be rational for each creditor as there is lack of coordination among creditors and each individual's incentive is to withdraw first, as she fears that others will withdraw before her.
3. Collapse of a bubble: the collapse of a stochastic speculative bubble as in Blanchard and Watson (1982) and others which was itself a rational equilibrium, but nevertheless was ex-post irrational and had a positive probability of collapse all along.
4. Moral hazard crisis: excessive, overly risky investment by banks and other financial institutions which were able to borrow as they had implicit or explicit guarantees from the government on their liabilities and were undercapitalized and/or weakly regulated (Akerlof and Romer, 1993). Foreign as well as domestic creditors went along with this risky behavior, as they knew the government or international financial institutions would bail them out. Krugman, 1998, applies this model to the East Asian crisis.
5. Disorderly workouts: this refers to the equivalent of a grab for assets in the absence of a domestic bankruptcy system in case of a liquidity problem of a corporate (Sachs, 1994a, 1994b and Miller and Zhang, 1997). Since there does not exist a means of reorganizing claims in case of an international liquidity problem a disorderly workout would result, which in turn will destroy value and create a debt overhang.

Conceptually, there is some overlap between these categories, and, in practice there will be elements of each explanation present—simultaneously or at different points in time—in causing or triggering financial crises or making a financial crisis more severe. And none of these hypotheses are necessarily a complete explanation.<sup>1</sup>

Although the causes of the East Asian crisis are complex and multifaceted, and with important differences across countries, we can distinguish two main “competing” hypotheses regarding the type of financial crises which have now become the subject of “popular” debate (for example, see the *Economist*, April 10, 1998). One hypothesis is where the underlying structural weaknesses and macro-economic policies were such that a crisis was inevitable. The other hypothesis is where, while there were these weaknesses, it was the sudden run on the currency that led to a shift to a worse equilibrium. This distinction is similar to the ones taken by Radelet and Sachs 1998—they contrast the possibility of a financial panic and disorderly workout with all the other hypotheses—and Corsetti, Pesenti, and Roubini, 1998—they contrast weak fundamentals with financial panic.

Distinguishing between these two, alternative hypotheses is important for the policy agenda. In case of a bank-type run cum disorderly workout situation, ample and rapid provision of liquidity—by the government of the countries involved, international financial institutions and others—could have helped stabilize the situation and prevented the financial crises from worsening (for arguments along these lines, see Feldstein, 1998). In case structural problems were the cause, the provision of liquidity would at best have pasted over the problems for a short-period, but not for long, and might actually have aggravated the problems, given the moral hazard problems of easy provision of liquidity delaying reforms, especially on structural weaknesses.

We will take the intermediate view, but leaning more toward the financial panic interpretation. In the run up to the crisis, the East Asian economies most affected by the crisis did demonstrate growing vulnerability, although lack of good information masked some weaknesses such as the magnitude of unhedged short-term debt. Other weaknesses, for instance in the financial sector and corporate governance, were well recognized for some time. These weaknesses did not raise alarm bells in the minds of many investors, except in the last year or so for Thailand and in the last stages for Korea. An important difference between the East Asian crisis and the debt crisis of the 1980s and even the Mexican peso crisis of 1994-95 is that fiscal policy and public sector debt did not contribute to the increase in vulnerability or in triggering the crisis.

Instead, the growing vulnerability can be attributed to the private investment boom and surge in capital inflows, which itself were based on the region’s success—particularly its strong

---

<sup>1</sup> For example, the financial panic explanation requires that there are significant real effects that trigger a move to a worse equilibrium. Since most East Asian countries had low public, external debt, however, it is not obvious why governments of these countries could not have prevented the occurrence of financial crises by taken over or guaranteeing those private sector liabilities which were subject to a bank run, that is not being rolled over. Surely, moral hazard was a concern, but this was in the end often not avoided anyhow and besides, the cost of the crises was often so high that it could have been a better policy. Currently, a complete model, which includes the tradeoffs between public and private debt, is missing.

economic fundamentals and the structural reforms of the 1980s. But the pace and pattern of investment in recent years, and the way in which it was financed, made some countries vulnerable to a loss of investor confidence and reversal in capital flows. This growing vulnerability was the result of private sector decisions rather than public sector deficits. These private sector activities took place, however, in the context of government policies that did not do enough to discourage excessive risk-taking while providing too little regulatory control and insufficient transparency to allow markets to recognize and correct the problems. At the root of the problem were weak and poorly supervised financial sectors against the backdrop of large capital inflows. Equally, inadequate corporate governance and lack of transparency masked the poor quality and riskiness of investments. In addition, although macroeconomic policies were generally sound, pegged exchange-rate regimes and implicit guarantees tilted incentives toward excessive short-term borrowing and capital inflows. These weaknesses in the policy framework were aggravated by undisciplined foreign lending and volatile international flows.

In attempting to provide an explanation of the East Asia crisis, the remainder of the paper distinguishes between three aspects: *first*, the causes and manifestations of vulnerability; *second*, the factors that triggered the crisis; and, *third*, the factors and dynamics that have led to a more severe downturn than was generally anticipated.

The paper identifies four main elements that led to growing vulnerability: (i) weaknesses in the financial sector, both moral hazard and incentive problems as well as institutional and regulatory weaknesses; (ii) weaknesses in corporate governance and transparency; (iii) incentives to borrow imprudently because of the interaction between macroeconomic conditions and policy responses to incipient inflows and microeconomic factors both on the domestic and international side (including lack of due diligence on the part of foreign lenders). While ex-post perhaps inconsistent and ex-ante worrisome, many of these weaknesses were generally known for some time.

The main manifestations of these weaknesses were: (i) widening deficits and slowdowns in productivity and export growth; (ii) increased banking sector fragility associated with lending and asset booms and rising exposure to risky sectors; (iii) high leverage; and (iv) currency and maturity mismatches that left some economies highly vulnerable to reversals in capital flows. There were, therefore, three dimensions to this growing vulnerability. First, there was some deterioration in economic fundamentals but this started from strong initial conditions. Second, growing contingent liabilities that were not adequately recognized before the crisis. Third, increased risks of an external liquidity crunch primarily because a large buildup of external short-term debt, much of which was unhedged.

However, the magnitude of these weaknesses differed considerably between countries. They were the most pronounced in the case of Thailand, and it was growing perceptions about a misalignment of the exchange rate that led that led to pressures on the Baht, much the same way as in Mexico in 1994 and the Czech Republic in 1996. There were also similar warning signals in the case of Korea. But in the case of the other Southeast countries, it was the devaluation of the Baht that triggered the speculative attacks, thus negating an explanation based on

fundamentals only as these would have shown up in more striking country differences than in a general regional slowdown.

The buildup of vulnerabilities and some similarities in financial conditions and structures did leave some East Asian countries exposed to the possibility of a bank run in the face of shocks. Even where they did not trigger the crisis, there was increased focus on structural weaknesses and financial structures in the aftermath of the initial attacks. Together with delayed policy responses and political transition and uncertainty in some of the countries, and the lack of mechanisms for orderly debt workouts—both external and domestic—this led to a sharp erosion in investor confidence and to real effects. The result was a move to a worse equilibrium, which resulted in a loss of creditworthiness, which could not be offset fully with an infusion of liquidity from official sources.

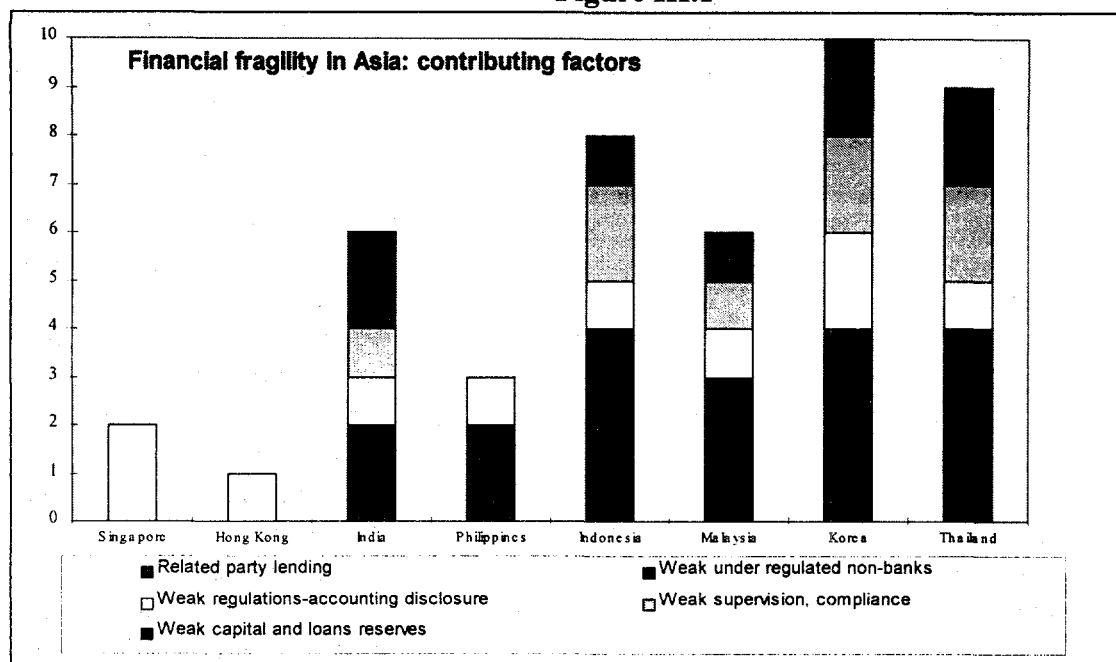
### **Weaknesses in East Asia's Financial Sectors**

Weaknesses in financial systems were probably the single most important factor contributing to vulnerability in East Asian economies (see further Claessens and Glaessner, 1997). Insufficient capital adequacy ratios, inadequate legal lending limits on single borrowers or group of related borrowers, inadequate asset classification systems and poor provisioning for possible losses, poor disclosure and transparency of bank operations, and lack of provisions for an exit policy of troubled financial institutions all contributed to banking fragility in many East Asian countries. Relative to other developing countries, a limited role of foreign banks in local markets (Claessens and Glaessner, 1998) also reduced the ability of banking systems to absorb shocks, and more generally, inhibited the institutional development of banks.

Figure III.1 illustrates these weaknesses as perceived by the market in the fall of 1997. Each of these elements considered on their own or together may not lead to financial distress, and all East Asian countries have performed well over spite of these weaknesses. In combination with other weaknesses and policies, they can, however, lead to or exacerbate a crisis. The figure also shows that there were considerable differences among countries in terms of financial fragility, with the Philippines, for example, considerably less fragile than the other East Asian Economies, except for Hong Kong and Singapore.

Importantly interacting with these weaknesses was a process of financial sector liberalization. This process was composed of two reinforcing elements. First, domestic and external financial liberalization led to increased competition in the banking system that reduced the franchise value of banks and induced them to pursue risky investment strategies. Rapidly growing NBFIs were an additional important source of competition for banks, especially in Korea and Thailand. Furthermore, as NBFIs were generally less regulated and subject to weaker supervision than banks, their growth exacerbated fragility directly.

Figure III.1



Source: Ramos, 1997

The lingering effects of past policies dealing with financial distress exacerbated the impact of these weaknesses. Specifically, several countries had experienced a financial crisis that was partly resolved through partial or full public bailouts. This includes Thailand (1983-87), Malaysia (1985-88) and Indonesia (1994). These bailouts reinforced the perception of an implicit deposit or even wider liability cover to the detriment of market discipline. Indeed, in some cases, management of the restructured financial institutions was not changed.

### Weaknesses in Corporate Governance and Transparency

While many East Asian countries had made rapid and substantial progress in developing their capital, especially equity, markets during the 1990s, both corporate governance and disclosure systems were still weak and capital markets played a limited role in the governance of firms. Perverse connections between lenders and borrowers were common and led to insider and poor quality lending (see Figure III.1), and the financing of prestige projects and other “white elephants.” There were four, related problems in corporate governance: concentrated ownership; weak incentives; poor protection of minority shareholders; and weak information standards. But, most of these problems were not more severe in East Asia than in many developing countries.

- **Concentrated Ownership.** High ownership concentration is typically both a symptom and a cause of weak corporate governance. It is a symptom because in the face of weak legal and regulatory protection against abuse by corporate insiders, ownership concentration is a means for investors to be better able to monitor and control management. It is a cause because, given high ownership concentration, large, presumably politically powerful shareholders will not be a source of pressure for improvements in disclosure and governance as those may erode their corporate control and inside owner benefits. Reflecting both developments, Asian firms are

generally closely held and managed by majority, often family, interests. On average, excluding Korea, the three largest shareholders own some 50% of the shares of the ten largest non-financial private firms and 46% for the ten largest firms in Asia.<sup>2</sup> While this ownership concentration in Asia is not very different from that in Latin America, it does raise the possibility of increased risk taking.

- **Weak Market Incentives.** The incentives to improve, either at the individual firm level or at the country level, disclosure and governance were limited in many countries. Many firms had comfortable relations with banks and other financial intermediaries and were easily able to raise equity through new stock issues. This lack of market discipline appears to be due to five factors. First, the interlocking ownership between financial intermediaries and corporates, as in Chile during the early 1980s, as well as other relationships played a role. Korea is a good example of how interrelationships between banks and corporates reduced market discipline. Second, the rapid and large increase in stock prices in the early 1990s throughout emerging Asia may have reduced the sensitivity of equity investors to company disclosure and governance. Third, the requirement in some countries for government approval of new equity issues (and their prices), government ownership and contingent government support (e.g., in large infrastructure projects) may have also comforted investors. Fourth, there are few, well governed domestic institutional investors in the region. Privately managed institutional investors are rare and the large publicly controlled funds and investment banks have been mostly passive players in corporate matters. And fifth, key market institutions that play a key role in facilitating and creating the incentives for market discipline to work in industrial countries are not fully developed in the region. For example, credit rating agencies were only recently introduced in many countries. The nascent regulatory framework further aggravated this lack of market institutions. While by 1997 most East Asian countries had built the legal and regulatory basis to move from a merit to a market based regulatory system, markets did yet not necessarily adequately perform their signaling and monitoring functions.

- **Protecting Minority Shareholders.** The legal and regulatory systems of many countries in the region include a relatively wide set of provisions to protect shareholders from abuse by insiders. Table III.1 (based on La Porta et al., 1997 and 1998) compares the investor and creditor protection in East Asia with other regions. The table shows that shareholder' and creditor protection is stronger in Asia than in Latin America. In enforcement of property rights, however, the region, especially Indonesia and the Philippines, scores much below Latin America, meaning that shareholders could not fully use their legal protecting mechanisms. Furthermore, weak disclosure meant shareholders often did not have the information to judge corporate performance and insider behavior.

---

<sup>2</sup> Not corrected for shareholder affiliation and cross-shareholding between firms (see further La Porta et. al. 1998).



**Table III.1 Investor Protection in Asia and Latin America**

	<i>Investor Protection</i>	<i>Creditor Protection</i>	<i>Judicial Enforcement</i>		<i>Investor Protection</i>	<i>Creditor Protection</i>	<i>Judicial Enforcement</i>
	(1)	(2)	(3)		(1)	(2)	(3)
India	2	4	6.1	Argentina	4	1	5.6
Indonesia	2	4	4.4	Brazil	4	1	6.5
Malaysia	4	4	7.7	Chile	4	2	6.8
Pakistan	5	4	4.3	Colombia	1	0	5.7
Philippines	4	0	4.1	Mexico	0	0	6.0
Sri Lanka	2	3	5.0	Venezuela	1	na	6.2
Thailand	3	3	5.9	Average	2.2	0.8	6.1
Average	3.1	3.1	5.4				

- (1) An index of how well the legal framework protects equity investors. It will equal six when (1) shareholders are allowed to vote by mail; (2) shareholders are not required to deposit share in advance of a meeting; (3) cumulative voting is allowed; (4) when the minimum percentage of share capital required to call a meeting is less than 10%; (5) an oppressed minority mechanism is in place; and (6) when legislation mandates one vote per share for all shares (or equivalent).
- (2) An index of how well the legal framework protects secured creditors. It will equal four when: (1) there are minimum restrictions, e.g., creditors' consent, for firms to file for reorganization; (2) there is no automatic stay on collateral; (3) debtor loses control of the firm during a reorganization; and (4) secured creditors are given priority during a reorganization.
- (3) An index measuring the quality of judicial enforcement ranging from 1 to 10 (best) equal to the average of five sub-indexes measuring: (1) efficiency of the judicial system; (2) rule of law; (3) corruption; (4) risk of expropriation; and (5) risk of contract repudiation.

Source: La Porta et al. (1997 and 1998).

- **Accounting Standards and Practices.** Accounting and auditing standards in the region are generally consistent with those issued by the International Accounting Standards Committee,<sup>3</sup> and Malaysia and Thailand have strong reporting standards.<sup>4</sup> The Philippines' standards, however, appear weaker. There is strong anecdotal evidence, however, that accounting practices in the region were not yet up to international standards. Compliance with accounting rules was furthermore hampered by weaknesses in industry self-regulatory organizations. In Indonesia, for instance, in the absence of strong professional associations, the official capital market regulatory agency licenses legal and accounting professionals to work in the securities areas. An additional problem has been a shortage of well-qualified accountants and auditors, especially in Indonesia, the Philippines and Thailand. The impact of this shortage of well-qualified accountants was compounded by restrictions on the activities of foreign accounting firms in many countries in the region (e.g., Indonesia).

### **Incentives to Borrow Abroad**

Macroeconomic conditions prevailing in 1994-96, together with the policy mix the authorities chose in response, created incentives for firms to borrow abroad on an unhedged basis. Micro-factors further added to this. There were considerable differences, however,

<sup>3</sup> Malaysia, for instance, has adopted 24 of the 31 international accounting standards without alteration, while the others are generally consistent with international standards (World Bank, 1997).

<sup>4</sup> The Center for International Analysis and Research is an investment advisor located in the United States. The index is based on the reporting practices of major domestic corporates with regard to 85 disclosure variables.

between countries and within countries in the incentives and possibilities facing entities in the financial and corporate sectors to borrow abroad.

**Macroeconomic conditions 1994-96:** As mentioned earlier, following the structural reforms of the mid to late 1980s, the South East Asian countries saw sharp increases in their investment rates. For example, in Indonesia investment/GDP rose from an average 25 percent during 1985-89 to 32 percent during 1990-96, while in Korea the investment rates rose from an average of 30 percent to 37 percent during the period. Malaysia and Thailand saw even larger increases—from 26 percent to 40 percent and 30 percent to 42 percent of GDP respectively.

Against a backdrop of high rates of investment, the four countries that have been hardest hit by the crisis—Indonesia, Korea, Malaysia, and Thailand—all experienced an acceleration in the growth of domestic demand and the emergence of demand pressures during 1994-96. The case of the Philippines has been somewhat different, not only in terms of economic conditions, but also in the timing of the economic cycle during 1994-96.

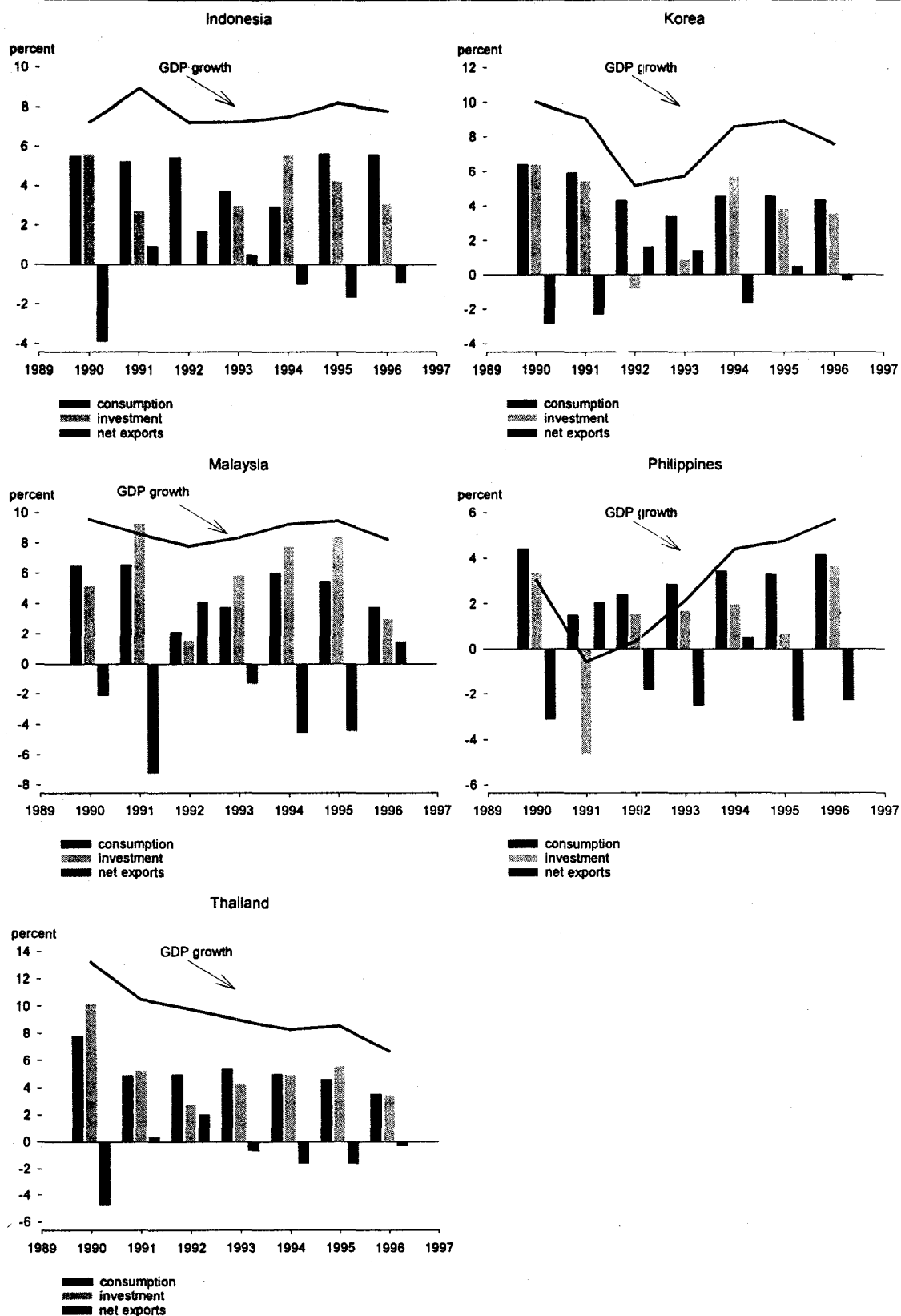
In Korea, the growth of domestic demand picked up very sharply in 1994 and 1995, with its contribution to GDP growth averaging around 9 percent, from 4 percent in 1993. In Malaysia, the contribution of domestic demand to GDP growth had already accelerated in 1993 from 3.5 percent the previous year to over 9 percent. During 1994 and 1995, the contribution of domestic demand to GDP growth increased further to around 13 percent. Similarly, Thailand which had already seen a two percentage points pickup in the contribution of domestic demand to GDP growth in 1993, saw a further pickup in the contribution of domestic demand in 1994 and 1995. Indonesia saw an acceleration in the growth of domestic demand slightly later—in 1994—which was sustained in 1995 and into 1996. As mentioned, the economic conditions and timing of the macroeconomic cycle in the Philippines was different. Following a period of stagnation during 1991-92, economic activity grew by 2 percent in 1993 and increased progressively to reach 5.7 percent in 1996. In all five countries the acceleration in the growth of domestic demand reflected both a pickup in the growth of investment and consumption, although the relative mix differed across countries. Also, in all five countries, with the sharp pick up in the contribution of domestic demand, the contribution of the external sector to GDP growth turned negative during the period (see Figure III.2).

With growing access to international markets—which has, in part, been the result of changes that have taken place in the international environment that have increased the responsiveness of investors to cross border investment opportunities during the 1990s—inflows of private capital contributed to, and reinforced, these demand pressures (Box III.1).

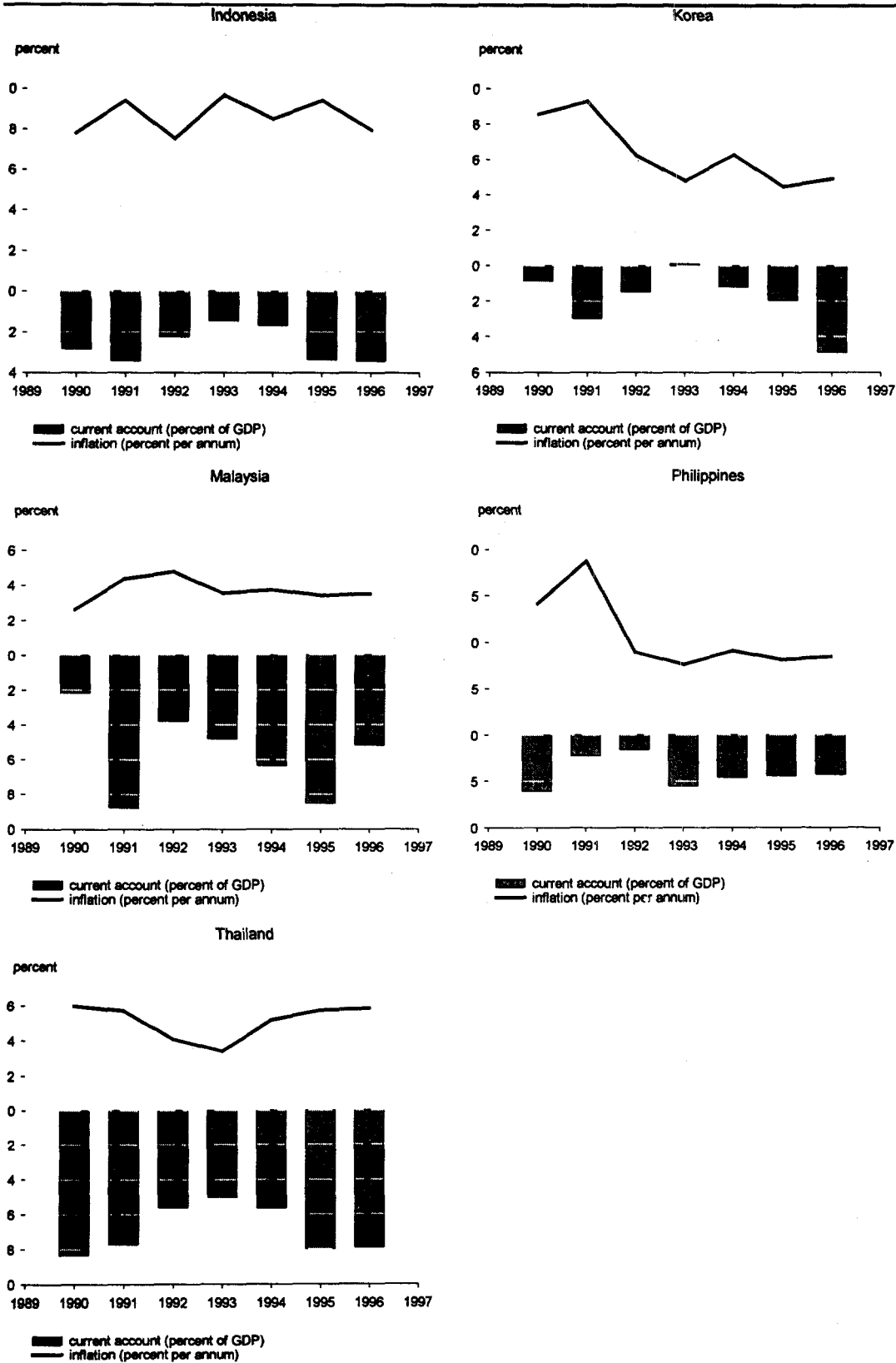
The demand pressures were manifested primarily in a sharp widening of current account deficits, although there was also some increase in inflation (Figure III.3). Malaysia's current account deficit widened by more than two percentage points in 1995 from under 6.3 percent to 8.5 percent of GDP, while Thailand's—which had been high throughout the 1990s—increased from 5.6 percent of GDP in 1994 to 8 percent of GDP in 1995. Although Korea had run very small current account deficits throughout the 1990s, the change in current account position since 1993 was significant—from a small surplus of 0.1 percent of GDP in 1993 to a deficit of 1.2

percent of GDP in 1994, 2 percent of GDP in 1995 and then almost 5 percent of GDP in 1996. In Indonesia, the current account deficit widened from 1.6 percent of GDP in 1994 to 3.4 percent of GDP in 1995 and further to 3.6 percent of GDP in 1996. In the Philippines, demand pressures did not emerge until 1996. Although inflation rose by 1.5 percentage points in 1994, this was largely due to supply shocks, and the widening of the current account deficit to GDP that occurred with the initial pickup in economic activity in 1993, reversed thereafter.

**Figure III.2 GDP growth and its components**



**Figure III.3 Inflation and current account positions**



### Box III.1 Private capital flows and domestic macroeconomic cycles

In principle, private capital flows can both generate and exacerbate domestic macroeconomic cycles through various channels.

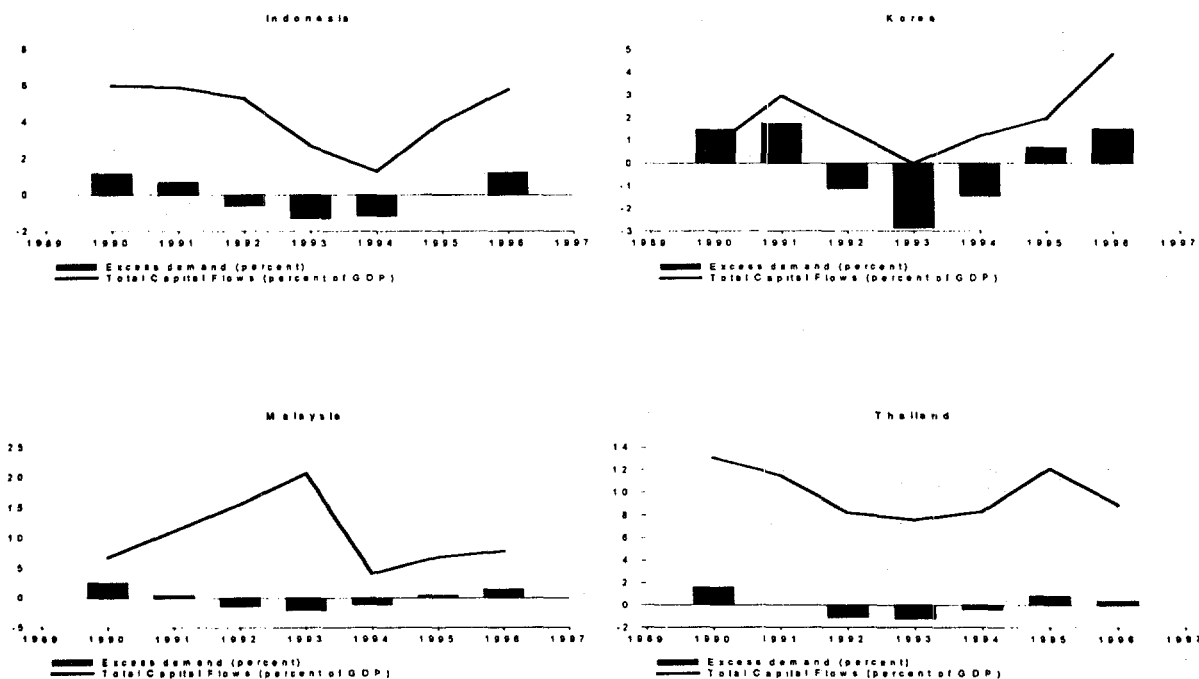
- First, in a more integrated setting, domestic demand pressures can be accommodated more easily by borrowing abroad. That is, private capital flows can validate excess demand pressures. If this excess demand falls primarily on the tradeables sector, it is likely to be manifested in a widening of the current account deficit, while if it falls on non-tradeable goods, it will lead to domestic inflationary pressures.

- Second, a country that has become relatively more attractive to investors (whether due to higher domestic returns and improved prospects or due to decline in returns elsewhere) will receive inflows of private capital, which, in turn, can lead to problems of domestic absorption and “overheating” pressures—even if these flows are financing investments, since in general, there is lead time involved before these investments translate into productive capacity. Again, this will be manifested in a widening of the current account deficit and/or inflationary pressures.

- Third, to extent that the excess demand falls on domestic assets it will contribute to *asset price* inflation. In turn, such asset price increases and attendant increases in financial wealth can further contribute to a consumption boom. That is, private capital flows can contribute to a consumption boom and macroeconomic overheating *indirectly* as well.

In fact, capital flows have tended to move very much in tandem with domestic macroeconomic cycles—particularly in Indonesia, Thailand and Korea. In Malaysia although there was less of a correspondence between the capital inflows and demand pressures in the early 1990s, from the mid 1990s onwards, capital inflows have moved with the domestic macro-economic cycle.

Box Figure III.1 Capital flows and excess demand pressures



Excess demand is defined as the percentage deviation of actual GDP from potential GDP. Potential GDP was estimated using the Hodrick Prescott filter.

**Macroeconomic policy responses.** The policy mix used to deal with the overheating pressures and capital inflows added to the impetus for further inflows of private capital—and for the accumulation of short-term, unhedged external liabilities in particular.

In dealing with the demand pressures, relatively greater reliance was placed on monetary policy. The tightening of monetary policy increased domestic interest rates and the differential between domestic and international interest rates.

Adding to the pressures on domestic interest rates was the change in the stance of fiscal policy during 1994-96. It is important to recognize that the South East Asian had undertaken fiscal reforms and consolidation during the mid to late 1980s and had seen very significant improvements in their overall fiscal balances. During the 1990s their fiscal policy remained conservative in the medium-term structural sense. However, in light of the cyclical upturn in economic activity in 1994-96, the fiscal positions were not contractionary. Indeed, the fiscal impulse (the change in the fiscal stance) turned positive at a time when these economies were experiencing overheating pressures.

Finally the exchange rate systems of the Southeast Asian countries also played an important role. Concerned with preventing an appreciation of their real exchange rates, the South East Asian countries maintained pegged exchange rate systems—with the authorities intervening in the foreign exchange markets to maintain the peg in the face of the large capital inflows<sup>5</sup>. It could be argued that allowing a greater degree of nominal exchange rate appreciation may have reduced the incentives to borrow abroad—in as much as an appreciation of the nominal exchange rate increases expectations of a future depreciation.

The fact that the exchange rate policies in the South East Asian countries implied relatively *predictable* nominal rates, furthermore, encouraged the accumulation of these external liabilities in the form of *unhedged obligations*<sup>6</sup>. In particular, by reducing the perceptions of exchange rate risks, the relatively narrow range of nominal exchange rate fluctuations reduced the incentives to hedge external borrowing. Moreover, since short-term flows are more affected by fluctuations around the central parity—whereas long-term flows are more affected by movements in the central parity itself—the relatively narrow exchange rate movements meant that even potentially very short-term flows were not deterred from responding to the higher interest rate differentials.

---

<sup>5</sup> As discussed below, however, the pegging of the exchange rates did not in fact, ex post, prevent their real exchange rates from appreciating. This is because these South East Asian countries were, de facto, pegging to the US dollar and there were large cross currency movements between the US dollar and the currencies of their other trading partners (notably Japan) during 1995-96.

<sup>6</sup> The predictable nature of the nominal exchange rate is borne out, for example, in the fact that the standard deviations of the error term from a regression of the nominal exchange rate on a constant and a time trend during 1990-96 are very low for all four countries. Within these, Malaysia's nominal exchange rate was found to be the least predictable.

In sum, domestic interest rates (adjusted for actual exchange rate movements) rose and were sustained through sterilization efforts during 1994-96, which encouraged further inflows of capital<sup>7</sup>. And since short-term capital flows tend to be the most responsive to interest differentials, and nominal exchange rate movements were relatively limited, the composition of external liabilities became more skewed towards short-term unhedged obligations<sup>8</sup>. Moreover, as mentioned above, the 1990s has seen a progressive increase in the responsiveness of private capital flows to cross border investment opportunities<sup>9</sup>. Thus, while most of the Southeast Asian countries had experienced earlier bouts of macroeconomic overheating (for example, Indonesia saw demand pressures emerge in 1990/91, as did Thailand), and while the macroeconomic policy response had been similar, the speed and magnitude of the accumulation of short-term external liabilities was much greater during 1994-96.

*Indonesia.* Albeit to a lesser extent than in the previous bout of macroeconomic overheating (1990-91), Indonesia relied quite heavily on monetary policy in dealing with the demand pressures in 1995-96. Following a rapid growth in monetary aggregates in 1994, which had been based on an expansion of domestic credit, monetary policy was tightened significantly by mid-1995. The primary instrument of monetary management was open market operations using SBIs (BI certificates of deposits), but use of discount operations was also made. This was reinforced by measures to control the growth of bank credit more directly. In particular, BI emphasized “moral suasion”, and banks were required to submit annual business plans and implementation reports, and to set guidelines for credit policy formulation.

Although the exchange rate band had been widened several times during late 1994 and 1996—in an effort to further enhance the effectiveness of monetary policy—Indonesia still had to undertake significant sterilization, particularly in 1996, as monetary tightening induced further capital inflows<sup>10</sup>. As Figure III.4a shows, the potential contribution of net foreign assets to reserve money growth of 72 percent in 1996 was offset by a significant contraction of domestic credit, which resulted in a much lower actual growth of reserve money of 37 percent. Despite the large scale open market operations to sterilize inflows and maintain a tight monetary stance (the stock of SBIs outstanding rose from Rp 12 trillion at end 1996 as compared to 5 trillion at end

---

<sup>7</sup> Theoretically the actual depreciation of the exchange rate is best unbiased estimate of the expected depreciation only in the absence of a peso problem (and with constant risk premia). It is difficult to argue that a peso problem existed in the Southeast Asian countries prior to early 1997.

<sup>8</sup> This is also borne out empirically in cross country analysis. Montiel and Reinhart (1997) for example find that an intensification of monetary tightening and sterilization is associated with an increase in the volume of short-term capital.

<sup>9</sup> One indication of the fact that capital flows have become more responsive to expected rates of return and that the Southeast Asian countries have become more financially integrated is the increase in the “offset” coefficient—the degree to which a contraction in domestic credit is offset by inflows of capital—during the 1990s. In Indonesia for example, the offset coefficient increased from 0.47 (i.e. 47 percent of domestic credit are offset by capital inflows within the quarter) during 1988-93, to 0.64 during 1990-96. Another indication of greater accessibility is the fact that in the early 1990s, of the firms that were rated, only those rated A or above had access to international bond issuance. During 1994-96, 35 percent of the rated corporates from the Southeast Asian countries (Indonesia, Malaysia, Philippines, Korea and Thailand) that issued international bonds, were rated below A grade.

<sup>10</sup> The exchange rate band was widened several times from 1 percent in January 1994 up to 8 percent in September 1996.



1995), monetary aggregates continued to expand rapidly in 1996. Several additional measures were therefore introduced during the course of the year. These included increasing banks' reserve requirements from 2 percent of deposit liabilities to 3 percent, which was made effective as from February 1996, and resorting to greater moral suasion to limit the growth in domestic credit<sup>11</sup>.

Fiscal management had been a major element in the Government's success in adjusting to the large external shocks that Indonesia experienced in the 1980s, and Indonesia's fiscal accounts continued to show improvements during the 1990s. In fact, since 1994 Indonesia had recorded fiscal surpluses—generated in part by privatization—which Indonesia had used to prepay external public debt and improve its debt indicators<sup>12</sup>. And in both 1995 and 1996 the conservative fiscal position allowed a sizable buildup in government deposits with BI, which served as a moderating influence on reserve money growth. Despite the conservative fiscal position however, fiscal policy behaved pro-cyclically in 1996. In particular, while the fiscal stance (which measures the difference between the cyclically neutral balance and the actual balance) remained contractionary, it became less contractionary (i.e. the fiscal impulse was positive) at the time that demand pressures had intensified<sup>13</sup> (Figure III.4 b).

These factors together—particularly the tightening of monetary policy and sterilization—led to higher domestic interest rates during 1995-96 than that prevailing in 1994 (when interest rates were raised to discourage capital outflows in the aftermath of the Mexico crisis). The three month deposit rates for example, increased by almost three percentage points at the end of 1995 compared to the previous year. At the same time, US dollar interest rates declined during the course of mid 1995-1996. As a result, while the differentials between domestic and international interest rates (adjusted for exchange rate movements) were not as large as had been in the previous macroeconomic cycle of 1990-91, they nonetheless increased sizably during 1995-96. The differential between the 3 month domestic deposit rate and the 3 month US LIBOR rate for example, rose from an average of 8 percent during 1993-94 to over 11 percent during 1995-96 (Figure III.4 c).

At the same time, Indonesia's exchange rate policy played a role in reducing incentives to hedge the external borrowing that was taking place in response to the higher domestic interest rates. Until the exchange rate was floated in August of 1997, Indonesia maintained a pegged exchange rate system<sup>14</sup>, in which BI set the central rate and intervened in the foreign exchange market at a band around the central rate. Although in principle the central rate of the rupiah was

---

<sup>11</sup> Prior to February 1996, reserve requirements of commercial banks consisted of cash in vault and demand deposits with BI. Since February 1996 however, cash in vault no longer counts as a component of reserve requirements. Minimum reserve requirements are set at a certain percentage of commercial banks funds, defined as demand deposits, time deposits, savings deposits and other current liabilities. Since February 1996, the coverage has been expanded to include the above liabilities, regardless of maturity. Reserve requirements were further increased to 5 percent of deposit liabilities in April 1997.

<sup>12</sup> Prepayment was also used as a means of reducing the net inflows of capital and domestic overheating problems.

<sup>13</sup> The fiscal impulse is analyzed in terms of the respect to non-oil fiscal balance and demand pressures in the non-oil sector.

<sup>14</sup> Indonesia instituted a managed float on November 15, 1978, and replaced the US dollar as its external anchor with an undisclosed basket of major currencies. Since August 14 1997, Indonesia has had a "dirty" float, in which the exchange rate is essentially market determined with sporadic interventions by the authorities.

set against a basket of currencies, in practice, Indonesia attempted to target the real exchange rate by depreciating the rupiah vis a vis the US dollar to broadly offset the inflation differentials between the two countries<sup>15</sup>. This implied a relatively constant rate of depreciation of the rupiah. Moreover, while Indonesia had been progressively widening the exchange rate band, the existence of a band further helped in creating a relatively predictable nominal exchange rate. In other words, the movement of the central parity was fairly constant, and the fluctuations around the parity were relatively limited. This relatively predictable behavior is borne out by the fact that the variability of the nominal exchange rate around the trend was less than 0.25 percent throughout the 1990s (Figure III.4d).

---

<sup>15</sup> This is corroborated in the results of a regression of the rupiah/US dollar nominal exchange rate on the inflation differential between Indonesia and the US, specified in the following form:

$$\log(nexch)_t = 7.55 + 0.67 \log(idncpi - uscpi)_{t-1}$$

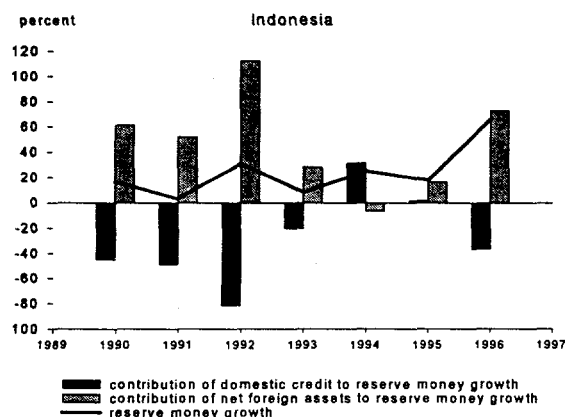
(494) (10.0) \*

$$adjR^2 = 0.98$$

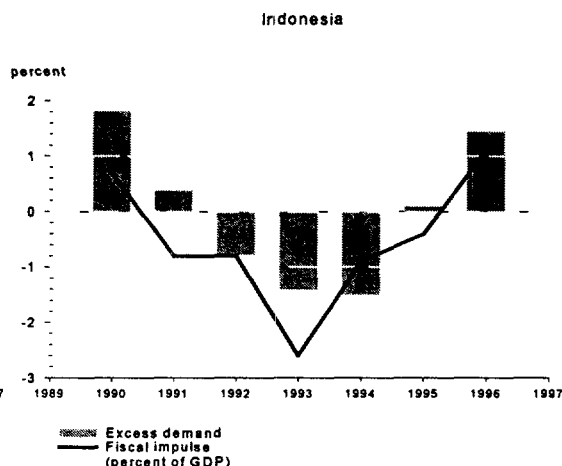
where *nexch* is the nominal exchange rate (defined as rupiah to 1 US dollar), *idncpi* is the Indonesian consumer price index and *uscpi* the US consumer price index. This suggests that a 1 percentage point increase in the differential between the domestic price level and the US price level, led to a depreciation of the nominal rupiah/dollar exchange rate of 0.68 percentage points the following quarter. (Figures in parenthesis indicate t-statistics: \* indicates significance at the 1 percent level).

**Figure III.4 Indonesia--Policy responses and incentives to borrow abroad**

**Monetary policy: components of reserve money growth**

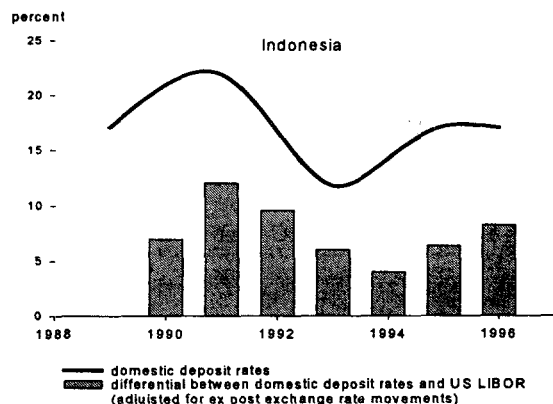


**Fiscal policy: fiscal impulse and demand pressures**

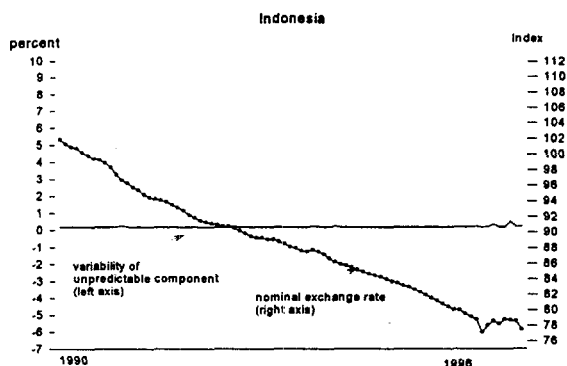


Fiscal impulse estimates based on the non oil sector

**Differentials between domestic deposit rates and US LIBOR**



**Nominal exchange rate and variability of unpredictable component of nominal exchange rate movements.**



The variability of the unpredictable component is given by the estimation of an ARCH model of the nominal exchange rate on a constant and a time trend.. Nominal exchange rate index 1990=100.

*Korea.* With the expansion in economic activity during 1994-95, there was a sizable increase in BOK's net foreign asset position, reflecting both a small current account surplus as well as capital inflows. BOKs responded by sterilizing through the issuance of large amounts of Monetary Stabilization bonds (MSBs) (Figure III.5a).

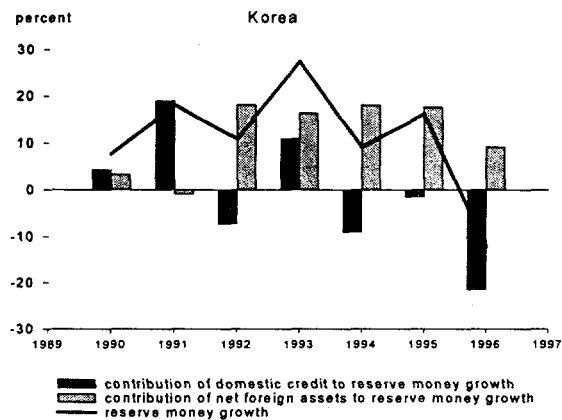
Fiscal policy in Korea has generally been formulated within a medium term framework, subject to the constraint that outlays remain broadly in line with revenues. While this has helped maintain a conservative fiscal position, the focus on expenditure objectives has meant that fiscal policy has, on occasions, been quite procyclical. In 1994, the fiscal stance, while remaining contractionary, was slightly procyclical, although relative to previous cycles, fiscal policy was less procyclical during the 1994 overheating bout (Figure III.5b).

With the pickup in economic activity and tightening of the monetary policy stance, domestic interest rates rose and the differential between domestic interest rates and the international rates, adjusted for exchange rate movements, widened significantly during 1994-95 relative to 1993 (Figure III.5c).

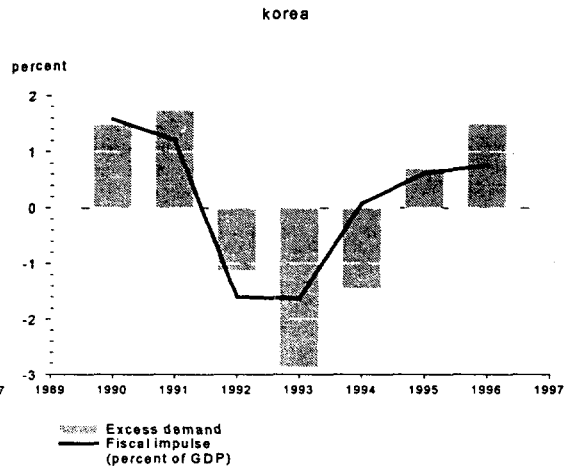
Under Korea's market average rate (MAR) exchange system, the nominal won/US dollar rate was allowed to float in the interbank market within a daily range around the weighted average of the previous day's interbank rates for spot transactions, and the range was widened in late 1993 to plus/minus 1 percent. Since the BOK acted as a buyer/seller of last order to prevent what it considered excessive exchange rate fluctuations, the system was still a managed float. From the end of 1994 until the first half of 1996 though, Korea did allow the nominal exchange rate to appreciate. This reduced the pressures on domestic inflation, and—by alleviating some of the need to tighten monetary policy and hence resulting in lower domestic interest rates than would have otherwise have been the case), as well as by increasing the expectations of some depreciation in the future—it reduced the impetus for further capital inflows. Moreover, while less so than the Malaysian ringgit, the won varied more around the trend—particularly from early 1994 onwards—than either the Thai baht or the Indonesian rupiah, (Figure III.5d).

**Figure III.5 Korea--Policy responses and incentives to borrow**

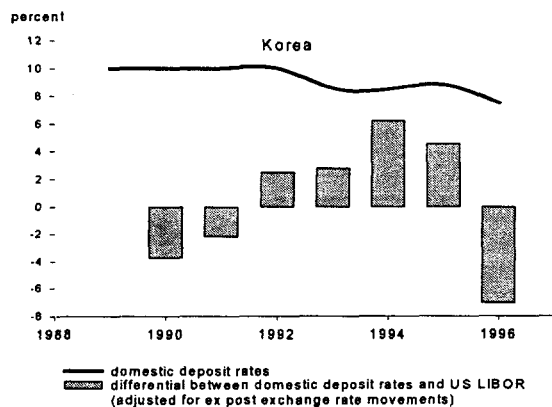
**Monetary policy: components of reserve money growth**



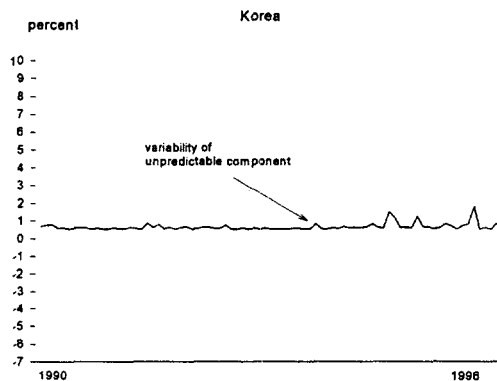
**Fiscal policy: fiscal impulse and demand pressures**



**Differentials between domestic deposit rates and US LIBOR**



**Variability of unpredictable component of nominal exchange rate movements.**



The variability of the unpredictable component is given by the estimation of an ARCH model of the nominal exchange rate on a constant and a time trend.

*Malaysia.* In Malaysia, monetary policy played a relatively important role in dealing with the macroeconomic during 1995-96, although, as discussed below, Malaysia also used the nominal exchange rate to a greater extent than Indonesia and Thailand to absorb potential overheating pressures associated with capital inflows. Monetary policy was tightened progressively from late 1995 to mid 1996 (Figure III.6a). In recent years, changes in the statutory reserve requirements (SRR), direct borrowing from, or lending to, the banking system, and the transfer of government and Employees Provident Fund (EPF) deposits to the central bank, have been the main instruments of monetary management. These have been supplemented by the sales of government securities and Bank Negara bills. In 1996 the statutory reserve requirements were increased twice in February and March to 13½ percent of eligible liabilities. In addition, over the past two years, Malaysia introduced a number of credit control measures, both in order to reduce banks' credit expansion and for prudential reasons.

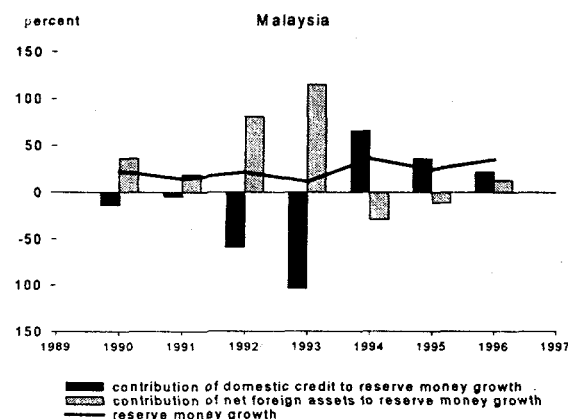
As in the other Southeast Asian countries, the fiscal restructuring and consolidation that Malaysia implemented, resulted in significant improvements in Malaysia's fiscal balance during the 1990s. In 1995 however, while still achieving a surplus, the federal government position registered a sharp decline from 3 percent of GDP in 1994 to 1.3 percent of GDP. (The slower pace of growth of revenues was in part due to income tax cuts and reductions in import duties). The budget surplus declined again marginally to 1.1 percent of GDP in 1996, and although, as in Indonesia, the fiscal stance remained contractionary in 1995 and 1996, it became less contractionary. In particular, the fiscal impulse was sizably expansionary in 1995 when the economy was experiencing strong demand pressures (Figure III.6b).

The policy response reinforced the upward trend in domestic interest rates that had begun to take place with the growing demand pressures in 1995. Domestic interest rates thus rose during 1995-96 in Malaysia as well—albeit to a lesser extent than in Indonesia or Thailand. The 3 month fixed deposit rates, for example, increased from 5.3 percent in 1994 to 6.6 percent in 1995 and 7.2 percent in 1996. Again, this led to a widening of interest rate differentials (adjusted for exchange rate movements) between domestic and international interest rates during 1994-96 relative to 1993 (Figure III.6c).

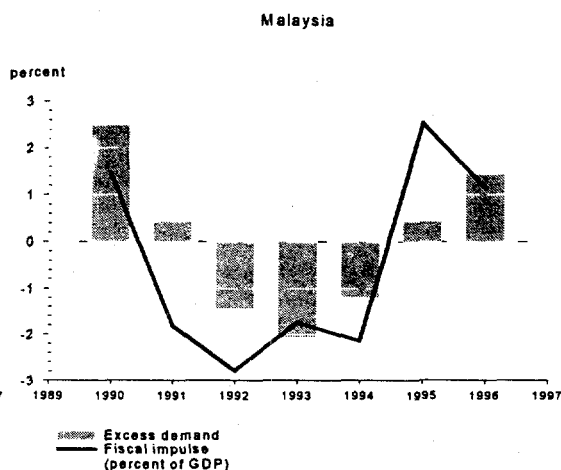
Compared to Indonesia and Thailand however, Malaysia's exchange rate policy provided less of an incentive for unhedged external borrowing during the period. In principle, Malaysia allowed the exchange rate to be market determined, with Bank Negara only intervening to avoid what it considered excessive exchange rate fluctuations. But since Bank Negara also monitored the exchange rate against a basket of currencies of major trading partners, in practice, Malaysia was also implementing a managed float. However, Malaysia allowed the nominal exchange rate to appreciate by around 6.5 percent between the beginning of 1994 and mid-1995 (and then depreciate by 4 percent between mid-1995 and the beginning of 1996). There was also much less predictability associated with the ringgit—the variability of the ringgit around its trend was around 2 percent in the early 1990s and this variability increased steadily over time (Figure III.6d).

**Figure III.6 Malaysia—Policy responses and incentives to borrow**

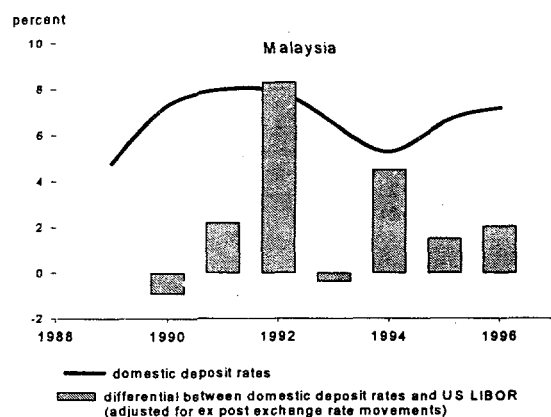
**Monetary policy: components of reserve money growth**



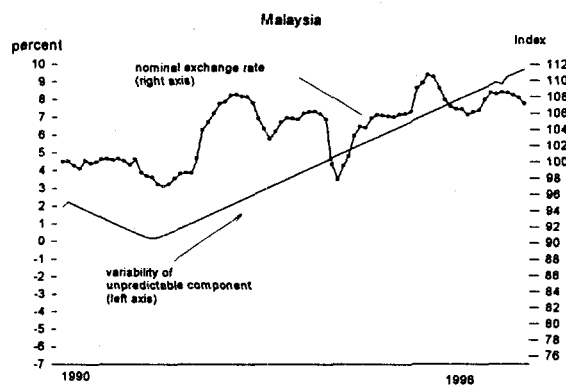
**Fiscal policy: fiscal impulse and demand pressures**



**Differentials between domestic deposit rates and US LIBOR**



**Nominal exchange rate and variability of unpredictable component of nominal exchange rate movements.**



The variability of the unpredictable component is given by the estimation of an ARCH model of the nominal exchange rate on a constant and a time trend. Nominal exchange rate index 1990=100.

*Philippines.* Monetary policy in the Philippines is based largely on a reserve money program which takes into account economic activity, inflation and the balance of payments position. In recent years, monetary management has relied on open market operations and changes in reserve requirements, moving away from direct controls such as credit controls and directed credit. In view of the rise in inflation in 1994, reserve money was tightened somewhat, with the authorities sterilizing much of the capital inflows that had picked up since 1992-93. Following some loosening in 1995, monetary policy was tightened again in 1996, in response to the demand pressures that began to emerge. In particular, Bangko Sentral intensified open market operations through borrowings under the reverse repurchase facility (RRP) and the sale of its holdings of government securities<sup>16</sup> (Figure III.7a).

On the fiscal front, the 1994-96 period witnessed significant improvements. In particular, revenue enhancing measures (both to widen the revenue base as well as to improve its buoyancy), combined with privatization, resulted in a decline in the central government overall deficit from 1.6 percent of GDP in 1993 to 0.4 percent of GDP in 1996. Accordingly, the fiscal stance was contractionary from 1994 onwards and fiscal impulse was only marginally expansionary in 1995—when there was little signs of demand pressures—and almost zero in 1996 when demand pressures began to emerge<sup>17</sup> (Figure III.7b).

Interest rate differentials widened sharply in 1994 when monetary policy was tightened to deal with the spike in inflation. They declined again however during 1995-96 (Figure III.7c). The fact that bank's reserve requirements were also being lowered during 1993-96 as part of program to bring down intermediation costs of banks and ultimately interest rates also helped in exerting downward pressures on domestic interest rates. (Reserve requirements had been reduced six times during 1993-95 from 24 percent to 15 percent by May 1995).

Although the movements in the nominal exchange rate were significantly lower during 1994-96 than had been the case in the past, the nominal exchange rate was still less predictable than in the case of Indonesia or Thailand (Figure III.7d). The macroeconomic incentive for the accumulation of unhedged short term external debt during this period, was therefore less<sup>18</sup>.

---

<sup>16</sup> RRP's involve the sale by the Bangko Sentral of a financial instrument or asset with the commitment to reverse the transaction in the future. These are considered Bankgo Sentral's borrowings from banks.

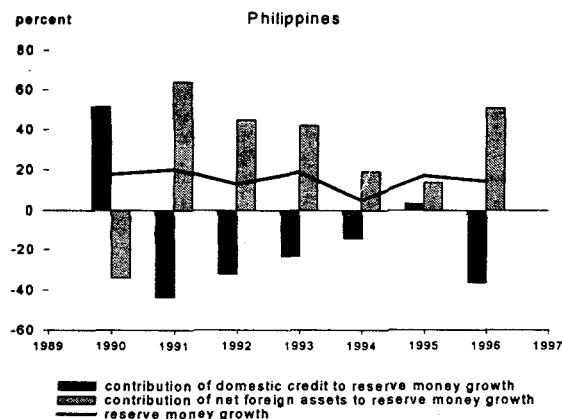
<sup>17</sup> The fiscal impulse has been calculated excluding the privatization proceeds.

<sup>18</sup> In 1992-93, when the differentials in interest rates were larger—due to monetary tightening and declines in global rates, and Philippines had been receiving large inflows of capital inflows the exchange rate had been allowed to appreciate. At the same time authorities implemented measures to reduce the potential loss of export competitiveness, including measures to reduce the domestic costs for exporters.

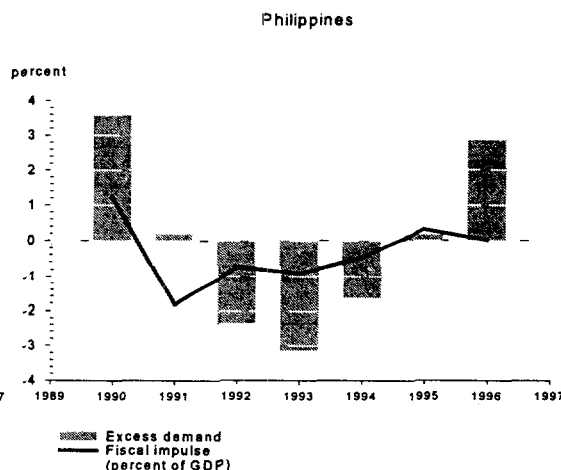


**Figure III.7 Philippines--Policy responses and incentives to borrow**

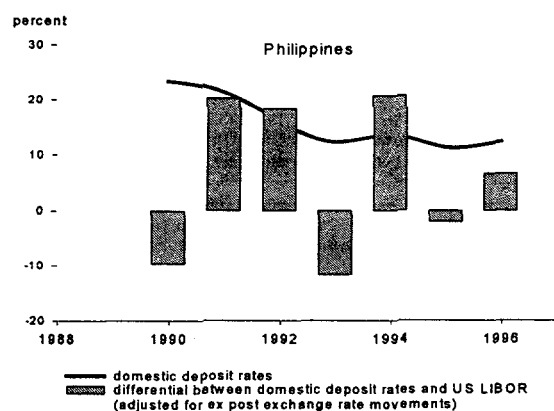
**Monetary policy: components of reserve money growth**



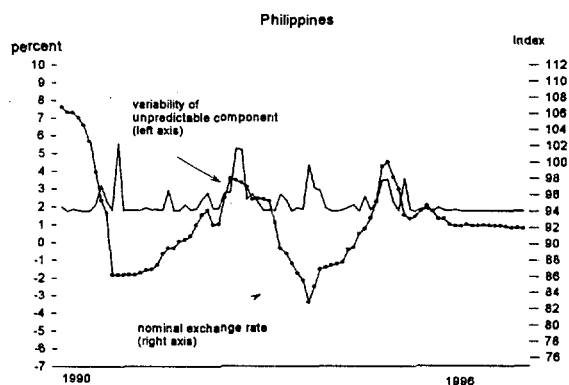
**Fiscal policy: fiscal impulse and demand pressures**



**Differentials between domestic deposit rates and US LIBOR**



**Nominal exchange rate and variability of unpredictable component of nominal exchange rate movements.**



The variability of the unpredictable component is given by the estimation of an ARCH model of the nominal exchange rate on a constant and a time trend. Nominal exchange rate index 1990=100.

*Thailand.* Like Indonesia, Thailand relied quite heavily on monetary policy and sterilized interventions in responding to the growing demand pressures<sup>19</sup>. As mentioned above, Thailand began to see excess demand pressures emerge in 1995. Accordingly, monetary policy was tightened progressively during the course of the year. One of the constraints to undertaking open market operations was the scarcity of high grade securities and an important measure taken in 1995 was the introduction of the BOT bonds. Despite substantial increases in net foreign assets in 1995, the contraction in domestic credit extended by BOT succeeded in containing reserve money growth at 22 percent per annum. In addition BOT introduced a series of administrative measures designed to reduce credit growth of banks and finance companies. These included extending the credit monitoring scheme to include finance companies with assets over B20 billion in late 1994, requiring that reserves for non-resident baht deposits be held entirely as non-remunerated deposits at the central bank in 1995, and tightening the limits on financial institutions' foreign exchange position also in 1995. During the first half of 1996, when private capital inflows were sustained, BOT continued to sterilize—through repurchase operations and increased issuance of BOT bonds (Figure III.8a).

Following the fiscal consolidation undertaken during the Sixth Development Plan (1987-91) Thailand had succeeded in eliminating fiscal deficits, and Thailand's fiscal position remained conservative throughout the 1990s. Although fiscal surpluses had declined during the Seventh Development Plan (1992-96)—as the focus of fiscal policy shifted towards addressing the infrastructure bottlenecks—they remained around 2 percent of GDP during 1992-94. In 1995, the fiscal surplus rose to 2.5 percent of GDP. However, the fiscal stance which had been expansionary in 1994 (and hence had been counter-cyclical given that the economy was not experiencing overheating pressures), turned slightly more expansionary in 1995 (so that the fiscal impulse was expansionary) when excess demand pressures emerged. In 1996, the fiscal surplus declined to 1.6 percent of GDP, entailing a strongly expansionary fiscal impulse. (Although the growth of economic activity had also slowed slightly and demand pressures were lower than in 1995). In both years therefore fiscal policy was pro-cyclical (Figure III.8b).

Again, as in the case of Indonesia, domestic interest rates rose sizably. The interest rates on 3-6 month deposits for example, rose from 8.5 percent in 1994 to 11.6 percent in 1995, and the differential with 3 month US LIBOR, adjusted for exchange rate movements, was sustained at over 5 percent during 1994-96 (Figure III.8c).

Finally, Thailand's exchange rate policy was one which most encouraged unhedged borrowing—in as much as it entailed the least variation with respect to the nominal exchange rate. Since the baht had been devalued in late 1984, it had remained around Bt25 per dollar, showing only small changes around this value<sup>20</sup> (Figure III.8d).

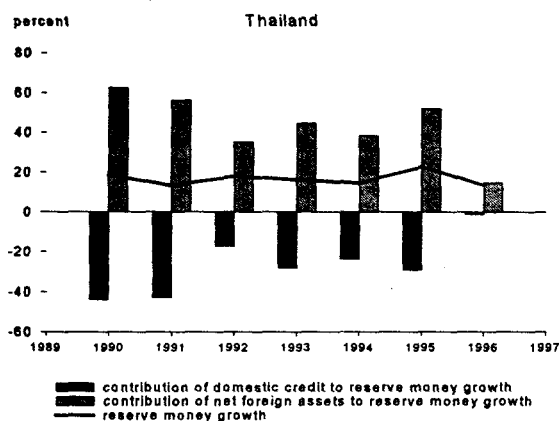
---

<sup>19</sup> Although "sterilized" interventions are often taken to refer solely to open market operations, here we are referring to the tightening of monetary policy in response to an accumulation of net foreign assets in the central bank—whether through open market operations or by other means.

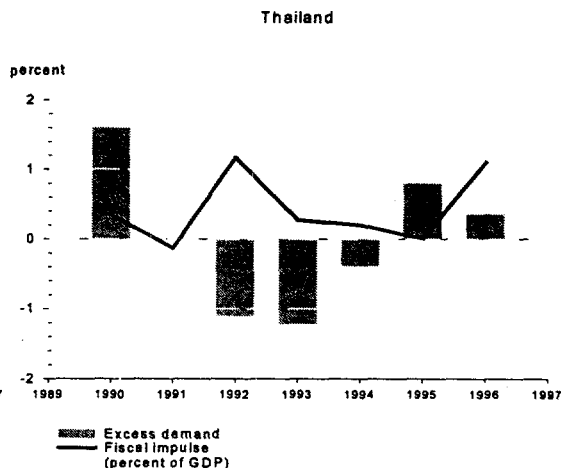
<sup>20</sup> Since late 1986 until mid-1997, the Baht fluctuated within a narrow band of plus/minus 3 percent around its mean of B/US\$ 24.5.

**Figure III.8 Thailand--Policy responses and incentives to borrow**

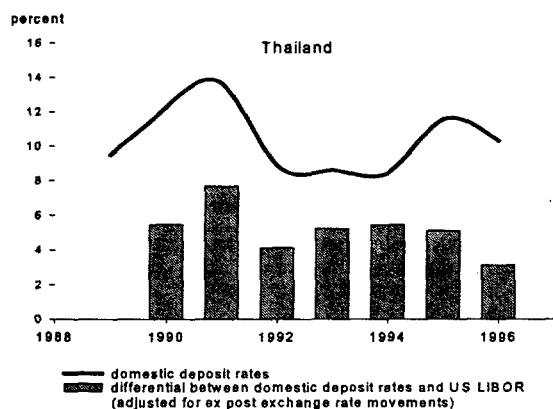
**Monetary policy: components of reserve money growth**



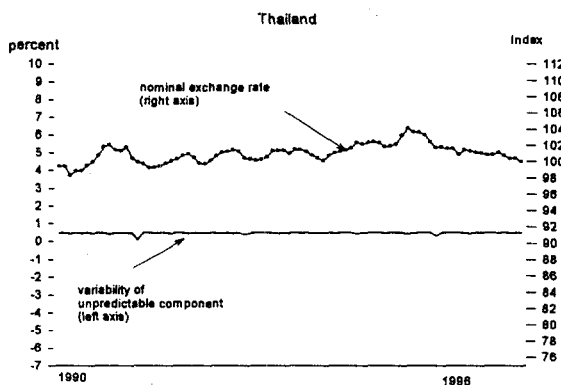
**Fiscal policy: fiscal impulse and demand pressures**



**Differentials between domestic deposit rates and US LIBOR**



**Nominal exchange rate and variability of unpredictable component of nominal exchange rate movements.**

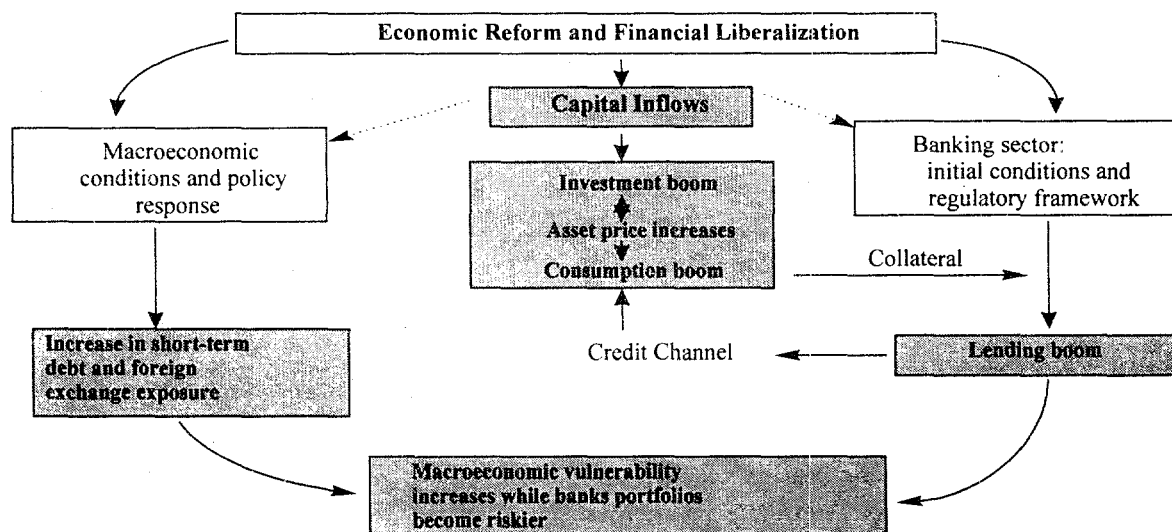


The variability of the unpredictable component is given by the estimation of an ARCH model of the nominal exchange rate on a constant and a time trend. Nominal exchange rate index 1990=100.

**Conclusion.** Overall therefore, the policy mix was one which contributed to higher domestic interest rates and entailed relatively limited and predictable exchange rate movements. The latter, in turn, reduced the perceived risk of exchange rate depreciation and of large fluctuations, which, combined with the high domestic interest rates, served to increase the incentives for unhedged external borrowing. During 1994-96, this policy mix was most pronounced in the case of Indonesia and Thailand.

**- Reinforcing processes.** The process of external financial liberalization, and the surge in private capital inflows that accompanied it, thus worked as an additional force to reinforce the upswing in the domestic business cycle. The increase in private capital inflows, which in the case of East Asian countries was motivated mainly for investment purposes, provided the additional liquidity that allowed banks and non-bank financial intermediaries to increase lending, despite efforts to sterilize inflows. Furthermore capital flows contributed to increases in asset prices. Finally, the policy response to the surge in inflows, which relied primarily on tight monetary policy and heavy sterilization, provided further impetus to these flows, which added to the process and aggravated the fragility in the corporate (and therefore) banking sector through sustained high interest rates. Figure III.9 summarizes the self-reinforcing nature of this process.

**Figure III.9 Selfreinforcing dynamics resulted in increased vulnerability**



**Microeconomic Factors.** An important explanation for the failure of aggregate macroeconomic policies to stem capital inflows, alter their composition or adequately minimize their adverse consequences lied in the quality of domestic financial intermediation and the governance of corporates. Those East Asian countries which received foreign capital mostly intermediated through the domestic banking system or lent directly to the corporate sector (in the form of bonds, loans and short term paper) became more vulnerable than countries which had received

mostly flows in the form of FDI.<sup>21</sup> Three factors were important: implicit insurance provided to financial institutions; high domestic funding costs and market segmentation; and certain specific institutional changes in the 1990s in some East Asian countries.

- **Implicit Insurance.** The (implicit or explicit) insurance on liabilities provided by the government to the financial system, as well as implicit guarantees provided to the corporate sector has been an important factor in motivating excessive risk-taking, including large foreign exchange risks (McKinnon and Pill, 1997, provide an analytical model). As some of the cost of a default of an individual borrower (or the negative impact of a general financial crisis on a borrower) were expected to be passed on to the rest of the domestic economy, risks were underpriced. This happened in case of Chile in the late 1970s, in Mexico in the early 1990s, and has been an important factor, especially in the case of Thailand and Korea.

- **High Domestic Funding Costs and Market Segmentation.** A decomposition of the nominal lending rate for non-prime borrowers for Thailand over the period 1991-1996 shows that domestic financial intermediation costs accounted for a significant part of the nominal Baht interest cost: almost 28% of the average nominal interest rate.<sup>22</sup> Individual bank data confirm that overall intermediation costs, as measured by net intermediation margins, were high in East Asia. As a result, domestic costs of funds were significantly higher offshore costs even after taking into account exchange rate risks, leading to (further) incentive to access foreign funds. Typically, however, this access was only available to the largest and best credit corporates and financial institutions, while smaller and less creditworthy firms were confined to the domestic market. This market segmentation, not uncommon in other countries, made it more difficult to limit offshore borrowings to prudent levels as it in effect created a strong constituency favoring a regime with implicit insurance and other distortions.

- **Specific Institutional Changes.** Specific institutional changes played a role in encouraging foreign inflows. Important among these was the creation of offshore financial markets where local financial institutions were to provide clients in nearby countries with financial services. Malaysia promoted, for example, Labuan as a financial center, and the Philippines developed an offshore Euro-peso market. These markets were often given regulatory and tax advantages over domestic markets. Because of the regulatory and tax advantages, much external financing was channeled through these centers.<sup>24</sup> They also put pressures to reform and deregulate local markets, as firms would otherwise switch to the offshore market. The offshore markets created, however, adverse dynamics, mainly as they ended up servicing domestic firms ("out-in" transactions) rather than firms in nearby countries ("out-out" transactions). Put differently, the offshore centers became vehicles for funding domestic firms, rather than vehicles

---

<sup>21</sup> Kaminsky and Reinhart, 1997 confirm this finding for a wider set of countries.

<sup>22</sup> Macro and currency risk factors constituted 16% of the total of the average nominal interest rate of 16% over this period, while the base US risk-free rate represented on average 28% of the nominal interest costs.

<sup>23</sup> The net financing gain is unclear, however, as it depends on the degree of substitutability: if foreign or domestic investment simply moves from the domestic market to the offshore market, there will be no net financing gain and only a loss of tax and regulatory coverage.

to provide financial services regionally, and encouraged more offshore borrowings. This bias was most severe in Thailand (see Box III.2).

**Box III.2 Offshore Centers: The Case of Thailand<sup>25</sup>**

Thailand's Bangkok International Banking Facility (BIBF) setup and special incentives contributed to a great degree to the crisis. In March 1993, permission was given to 46 (domestic and foreign) commercial banks to operate international banking business in Bangkok. In 1994 further privileges were granted to BIBF-based banks, including the right to open branches outside Bangkok and issue negotiable CDs. Due to special incentives, the BIBF provided an important channel for the domestic financial sector to raise short-term funds ("out-in" lending). Because of bilateral tax treaties between Japan and Thailand, Japanese banks could offset withholding taxes levied on foreign exchange borrowings by Thai companies against their other income in Japan. As a result, Japanese banks, which had about one-quarter of the BIBF-market, were willing to absorb the withholding tax and lend at very low spreads to Thai companies.

The supply of funds was further boosted by the incentive for foreign BIBFs to become full bank branches, the approval of which was made dependent on the volume of loans. Historically low international interest rates, especially on Japanese Yen, were another factor in the large financing available and low spreads charged. As a result, out-in lending boomed between 1993 and 1996 (from 126 billion Baht to 331 billion Baht). Reflecting the rapid growth of BIBF out-in lending, Thai commercial banks' foreign currency loans rose at the end of 1996 to \$31.5 billion, or 17% of private sector loans, while commercial banks' short-term external liabilities surged.

**Insufficient Risk Pricing and Due Diligence.** Foreign investors not always price risks adequately or perform full proper due diligence of countries or individual borrowers. At times, risks appear to be overestimated and spreads react too rapidly to events; at other times, excessive appetite for emerging markets' assets leads to an underestimation of risks and too low spreads. Eichengreen and Mody (1997), for example, find that changes in observable issuer characteristics do not provide an adequate explanation for changes over time in the volume of new bond issues and launch spreads. In important periods, such as the wake of the Mexican crisis, blanket shifts in market sentiment play the dominant role in increasing spreads. They also note that the first half of 1997 saw a period of large-scale bond issues by emerging market borrowers and dramatic spread compression, with no obvious changes in fundamentals. Similarly, Cline and Barnes (1997) show that spreads for emerging markets after the Mexican peso crisis fell by more than can be explained by the upgrading of emerging markets' economies by rating agencies or improved fundamentals. They find that the unweighted spread on sovereign issues of 14 emerging markets would have been about 245 basis points in the second quarter of 1997 if the statistical relationship between spreads and economic performance would have been the same as it was over the 1992-96 period. In reality, the average spread was 130 basis points. By this test, more than half of the decline in spreads in early-1997 was attributable to rising capital supply, including underestimation of risk, rather than improved country fundamentals.<sup>26</sup>

<sup>25</sup> See also Kawai and Iwatsubo, 1998.

<sup>26</sup> Comparing the evolution of the difference between the average spread on emerging markets' Brady bonds with that on high-yield corporate bonds in the US confirms this. While the difference had been as high as 300 basis points, in 1997 the difference declined sharply and in mid-July the Brady bond spread even fell below that on high-yield corporate bonds.

Spreads for non-sovereign borrowers in East Asian countries, which were already lower than for other emerging markets, declined relatively even faster than those for borrowers from other emerging markets during 1990s. Spreads for many borrowers in East Asian countries in late 1996/early 1997 were only marginally above those for long-maturity loans to US corporates. This increased appetite for Asian emerging markets was accompanied by poor due diligence: as late as May 1997, for example, investors were buying large amounts of short-term paper from Indonesian corporates with only a few days of due diligence.

### **The dimensions along which countries became vulnerable**

The reinforcing effects of high and rising investment levels, large private capital inflows and asset booms, combined with underlying weaknesses, led to the buildup of vulnerabilities along a number of dimensions: widening current account deficits and slowdowns in productivity growth; and increased banking fragility associated with lending booms, increased exposure to risky sectors, and increased maturity and currency mismatches. These effects were reinforced by macroeconomic policies and reinforced each other as well. There were, however, differences among countries that played important roles in both triggering a crisis and in its evolution once underway.

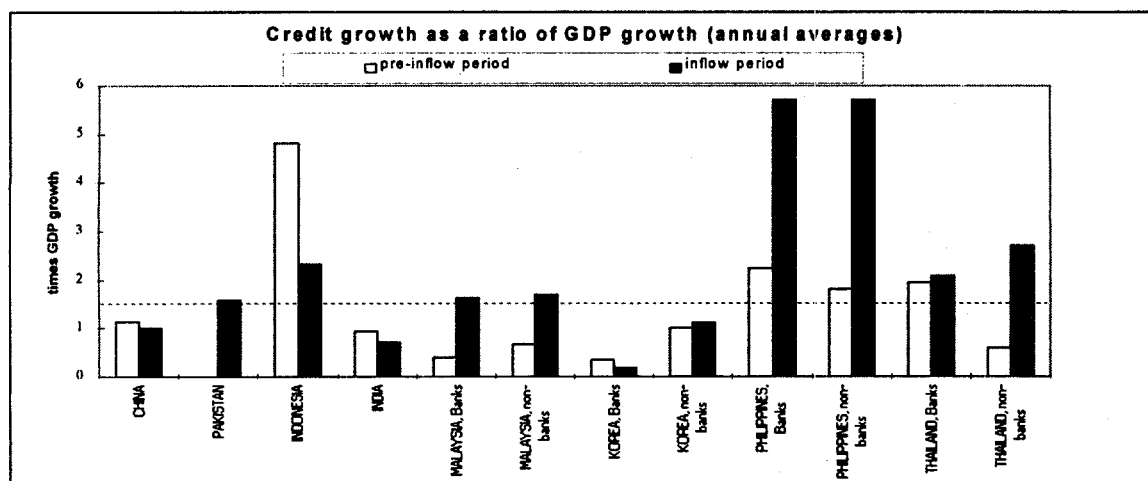
**Widening current account deficits and slowdowns in productivity growth.** The widening of the current account deficits need not have been unsustainable, and some countries such as Chile, Singapore and Thailand itself, have sustained high current account deficits over a long period of time. But the current account deficits were progressively reflecting investments that were of uncertain quality. Whereas in the late 1980s, the surge in investment was directed primarily towards tradables, and in particular the export sector, there was a large shift in the mid-1990s towards non-traded activities, particularly in Thailand and Indonesia. This shift was associated with lower overall productivity, although levels of productivity remained high relative to other regions (Sarel, 1997). Incremental capital output ratios (ICORs) rose sharply during the 1990s in all countries following a general pattern of decline in the second half of the 1980s. The rise in ICORs was in part due to the exceptionally high rates of investment, but likely also occurred because many large investments were not subject to market discipline and supported by explicit or implicit guarantees or financing. In Korea, where most investments remained largely geared towards the tradable sectors, excessive expansion occurred in some sectors, for example, the automobile and steel sectors.

**Increasing Banking Fragility.** Banks and NBFIs became more vulnerable to economic shocks over this period for two main reasons: by lending to sectors or firms whose debt service capacity was particularly susceptible to shocks; and by reducing their own capacity to absorb negative shocks, especially by exacerbating currency and maturity mismatches and by under-provisioning for future potential losses.

- **Lending booms** Financial liberalization, through decreasing reserve requirements, resulting increases in financial savings and the surges in foreign capital inflows, led throughout East Asia to increases in monetary aggregates. In turn increased liquidity and monetization resulted in a generalized surge in bank and NBFIs lending, although the amplitude and duration of

these cycles, as well as their apparent relationship with financial liberalization and the surge in capital inflows, varied from country to country. For example, in Malaysia, the Philippines and Thailand, bank and non-bank credit to the private sector began growing at higher rates and on a sustained basis following the surge in capital inflows. This high growth rate strained banks in their capacity to properly screen and assess risk of borrowers and projects. In Korea and Indonesia, in contrast, the growth in bank and non-bank credit to the private sector was lower during the inflow period than in the years prior to the surge in foreign capital (Figure III.10).

**Figure III.10**

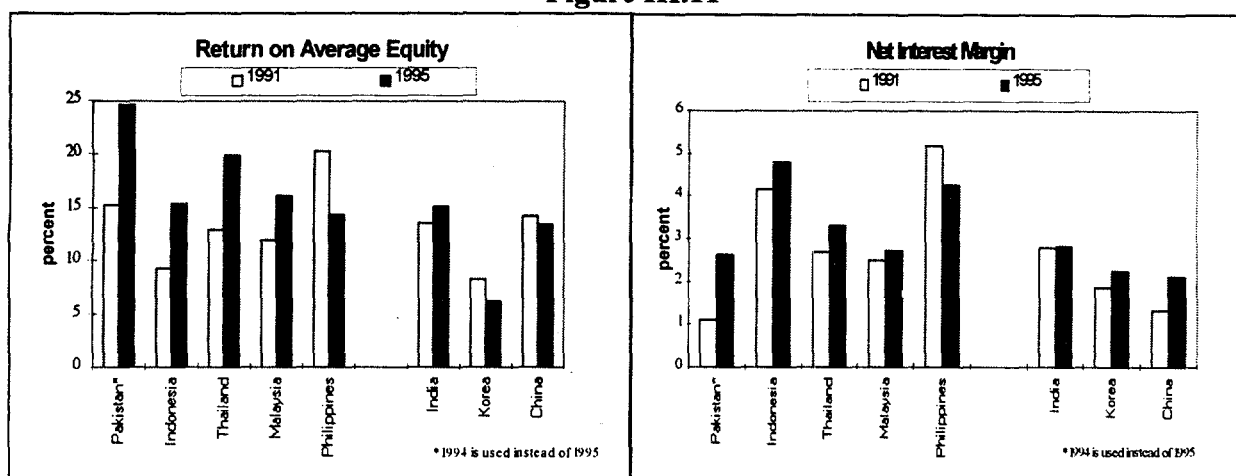


Source: IMF International Financial Statistics. Rates of growth are calculated on an annual basis and in real terms.

The rising fragility was not detected during the lending booms as the growth in banks' loan portfolios was accompanied by rising measured profits. Figure III.11 shows that in countries in which credit growth was high—except the Philippines—there was an increase in the profitability of the banking sector, consistently across all indicators. Conversely, in countries where the lending boom was smaller—in absolute terms or proportional to GDP—profitability tended to show a small increase, or even a decrease depending on the profitability indicator used.

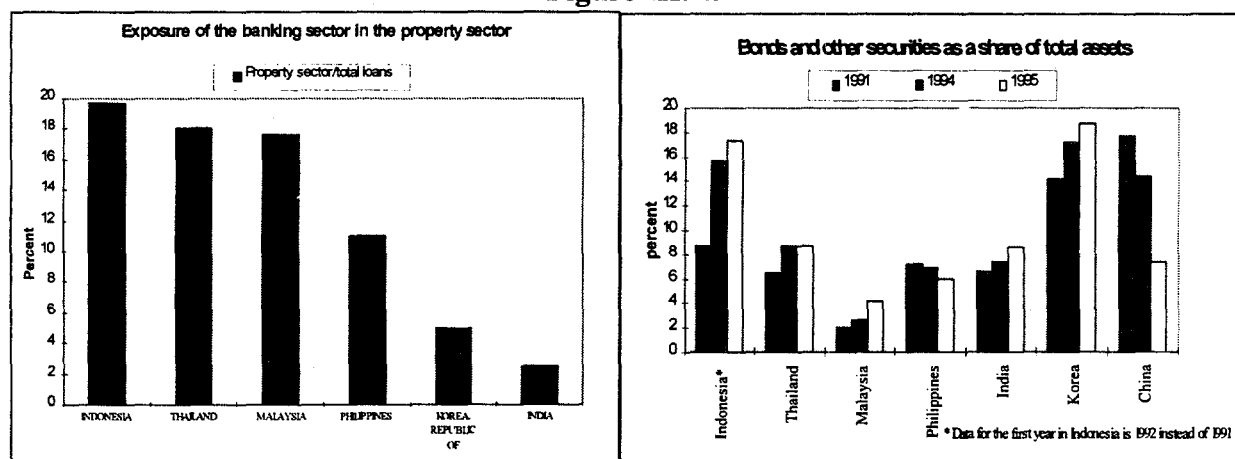


Figure III.11



- **Increased Exposure to Risky Sectors.** Real estate lending was high and the banking sector exposure to real estate was greater in countries where the growth of credit was larger than proportional to GDP growth (Figure III.12). It should be noted that data on real estate lending are not comparable across countries and in several countries likely underestimate the exposure of the banking system to the real estate sector (e.g., as loans to developers are not classified as lending for real estate). But, there were significant differences among countries. Korean banks, for example, did not have large property exposure. Korean banks did, however, increase the share of bonds and other securities in their portfolios to almost 20% (in addition, Korean banks extended large amounts of guarantees on securities issued by corporates). Except for the Philippines, countries increased their exposure to bonds and other securities (see figure III.12).

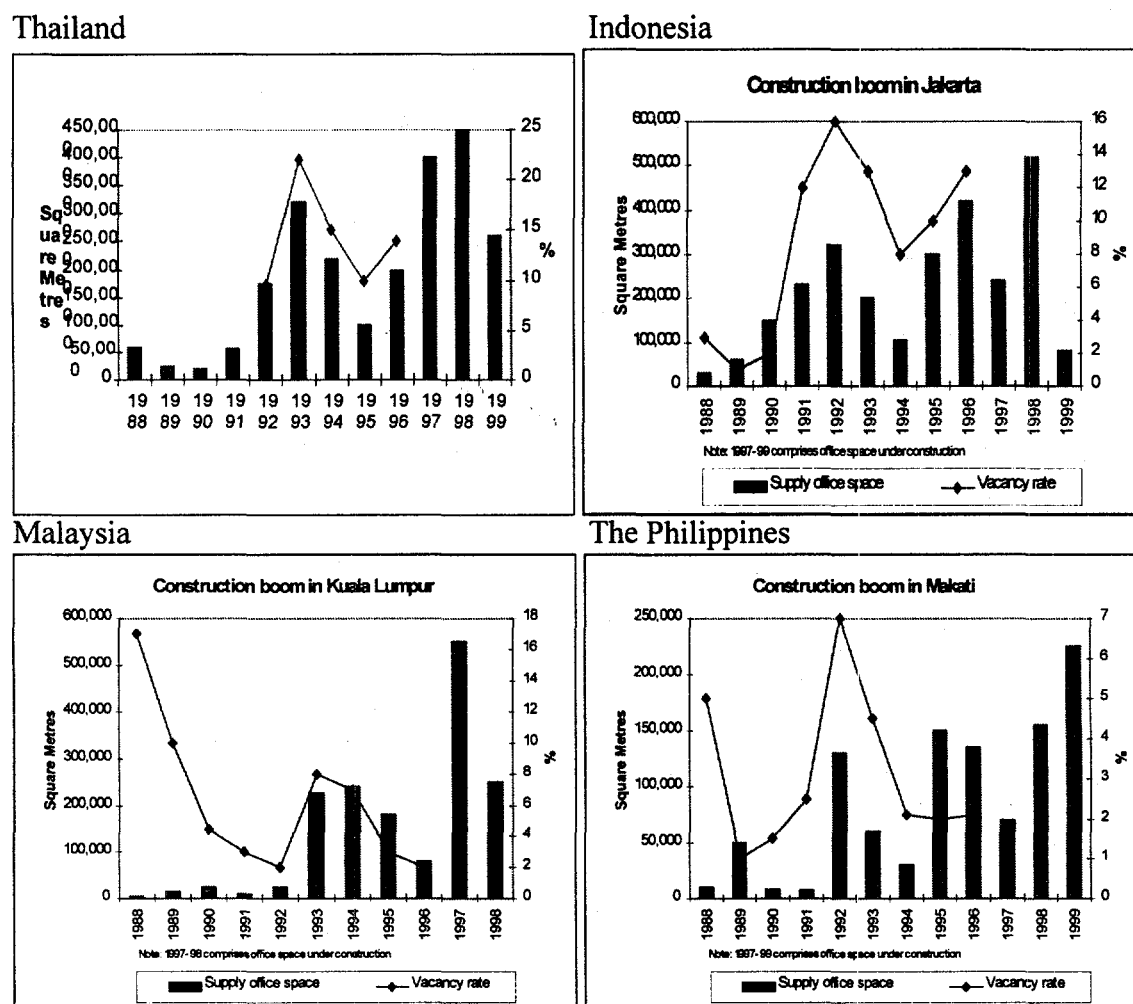
Figure III.12



Source: Goldman-Sachs, *Banking Research*, September 1997.

Both real estate market and securities markets have been very volatile in East Asia. Real estate price fluctuations during the 1990s were the highest in Philippines and Malaysia, with ratio of highest to lowest prices since inflows started of 3 and 2, respectively. Still, in both countries, vacancy rates in 1996 were relatively low at around 2% (and the banking sector exposure to real estate appeared to be low in the Philippines). In Thailand and Indonesia, the variability of real estate prices was lower, with high to low ratios of 1.25 and 1.32, respectively. In both countries, vacancy rates in 1996 were relatively high at around 14% and increasing. The space under construction in Southeast Asia at the end of 1996 already suggested a significant oversupply of real estate during 1997-99, especially in Thailand (Figure III.13).

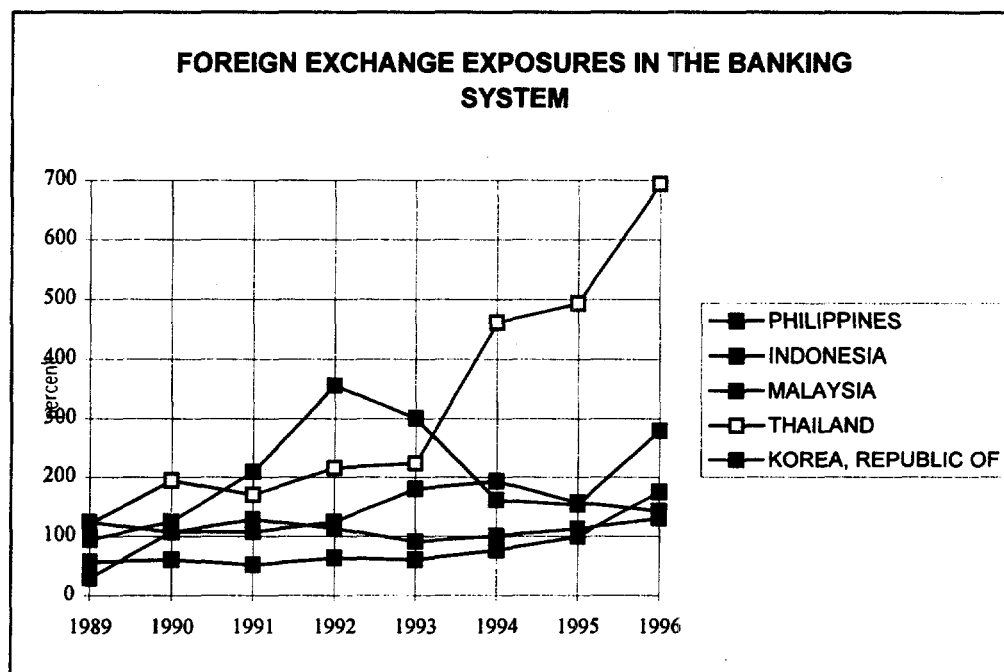
**Figure III.13 Real Estate Office Supply and Vacancy Rates**



- **Increased Foreign Exchange Exposure.** Especially in Thailand, Malaysia and the Philippines there was a significant increase in foreign exchange exposures of banks since the late 1980s (Figure III.14). Also, for Korea, Thailand and the Philippines, there was a very rapid increase in the stock of foreign liabilities of NBFIs. In Indonesia, the increase of foreign exchange exposure of banks was significant up to 1994, and was followed by a small decrease,

but the overall exposure was small. Commercial banks in Korea did not show any increase in foreign exchange exposure during this period, but merchant banks in Korea did increase their foreign exchange exposures significantly.

**Figures III.14 Foreign exchange exposures in the banking system**  
(Ratio (%) of foreign exchange liabilities to foreign exchange assets)



- **Maturity Mismatches** Vulnerability also emerged in maturity mismatches, especially on the external financing side. With the exception of Indonesia, initial levels of external debt were low in East Asia by international standards (Figure III.15). The accumulation of short-term external liabilities over the 1991-1996 period, however, was rapid and most of this borrowing went unhedged (Figure III.16). Short-term foreign liabilities of banks grew extremely rapidly in Thailand, Philippines, Korea and Malaysia. While short-term foreign liabilities of Indonesian banks did not increase rapidly, that of corporates did. The crisis itself has revealed that short-term borrowings were even higher than these figures suggest as much non-bank liabilities and borrowing escaped national and BIS coverage.

Figure III.15

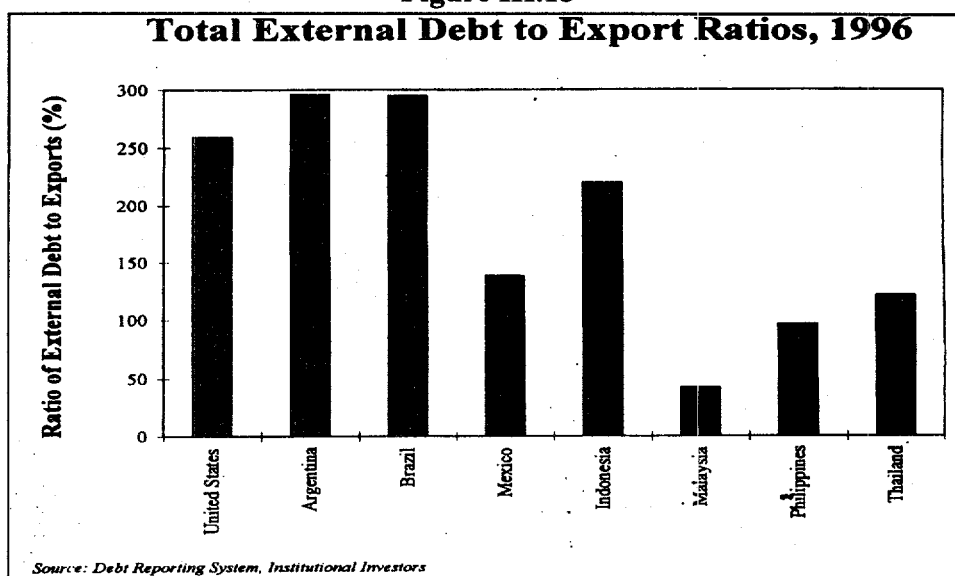
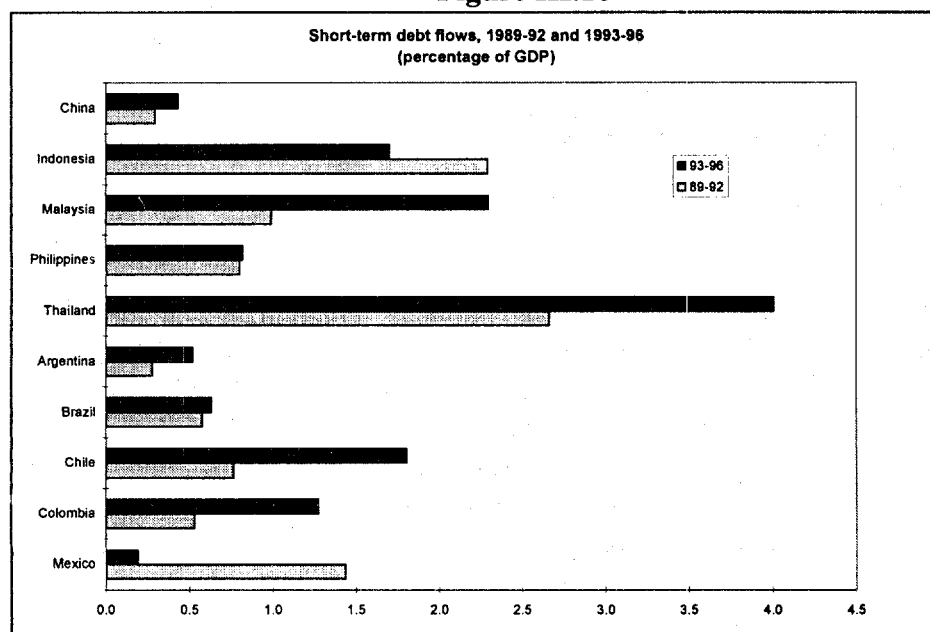


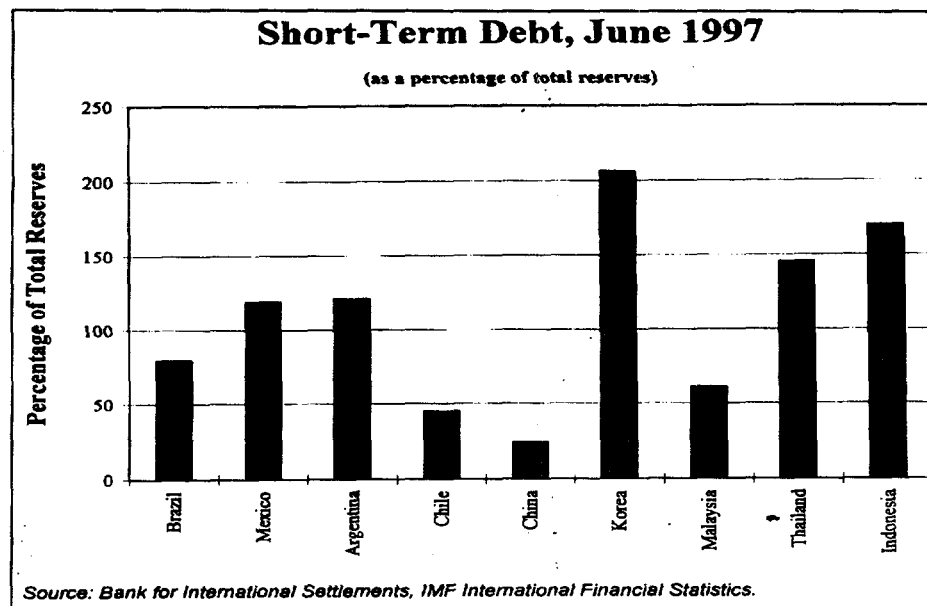
Figure III.16



Source: IMF, World Economic Outlook, Database.

The most telling indicator of vulnerability was the ratio of short-term external debt to external reserves prior to the crisis (Figure III.17). It shows that short-term debt exceeded external reserves by a large margin for Korea, Thailand and Indonesia in June 1997, exceeding that for many other developing countries. This high ratio of short-term obligations to liquid foreign exchange assets made these countries much more vulnerable to a potential run on their currencies in the face of a loss of investor confidence. See also Sachs, Tornell and Velasco, 1996 and Radelet and Sachs, 1986.

Figure III.17



**Growing Investor Concerns** Against this backdrop of growing vulnerability, developments in 1996 and early 1997 led to growing concerns on the part of investors. First, Thailand saw a sharp deterioration in export performance. After having averaged over 14% in real terms during 1990-95, Thailand's export growth turned negative in 1996. At the same time, Thailand saw its real exchange rate appreciate by about 10% during 1996. The bulk of this appreciation was due to an appreciation of the nominal effective exchange rate, which, in turn, reflected fluctuations between the US dollar (which Thailand was in effect targeting) and the currencies of Thailand's other trading partners, notably Japan. Using competitor weights, the appreciation in Thailand's real exchange rate was even larger at 15 percent. Moreover, the fact that the other East Asian countries also saw an appreciation in their real exchange rates after 1995 and a concurrent slowdown in the growth of their exports, led to investor concerns regarding the region's competitiveness generally.

Export growth—which had been very strong during the 1990s in the other South East Asian countries as well—decelerated sizably in 1996, albeit much less than in the case of Thailand. Malaysia saw a slowdown in export growth from an average of 14% per annum during 1990-95 to 5% in 1996, and Indonesia saw a slowdown from an average of 8% per annum to 5% (Figure III.18). In case of Korea, exports slumped in 1996—in large part due to a decline in terms of trade as a result of a glut in the global electronics markets that resulted in a sharp fall in prices, but were growing at a rate of 15% in mid-1997. And export receipts during the same period increased by about 20% in case of the Philippines.

Ex-post analysis shows that the slowdown in world demand can explain a large part of the slowdown in the region's export growth (Bhattacharya, Ghosh and Jansen, 1998). The slowdown in the growth of export markets was greatest for Indonesia at over 6 percent. The growth of Malaysia's export markets slowed by around 5 percentage points, while that of Thailand slowed by just over 4 percentage points. In case of Malaysia and to an even larger extent Thailand, the exchange rate appreciation was also a significant factor. Nonetheless, it is true that the slowdown in these countries' export performance was greater than what could be expected based on the slowdown in export market growth and real exchange rate appreciation alone.

Two additional factors could have accounted for this difference: the global downturn in demand for some specific products in 1996 such as semiconductors; and, growing competition from low cost producers. A detailed analysis of the top ten exports of Indonesia, Malaysia and Thailand (Bhattacharya, Ghosh and Jansen, 1998) suggests that in the more recent period, increases in China's market shares were accompanied by declines in market shares in their top ten products, especially in the case of Thailand. By contrast, during 1989-92, increases in China's world market shares were not associated with declines in world market shares in these products for the three countries. All three countries, however, have increased their share of more skill intensive products as China's share in their traditional exports increased during the 1990s. And although there has been a deceleration in the pace at which their world market share of manufactured exports has grown, these countries have continued to increase world market share in total exports of manufactures.

This analysis suggests that the deterioration in the region's export performance and the implications for future competitiveness were not as severe as the market may have assessed them to be. However, the real exchange rate appreciation and export slowdown were likely very important in affecting investor perceptions. Increasingly, investors began to focus on the misalignment of exchange rate in Thailand. Following prolonged poor policy reaction in Thailand, the crisis was then triggered.

#### **IV. Evolution, the Role of Contagion and the Depth of the Crisis**

##### **Onset and Evolution of the Crisis**

- **Thailand.** There was a lag of almost a year between the onset of confidence weakening and vigorous policy reaction. Equity investors were the first to withdraw. The stock market, which had peaked in February 1996, had already fallen by 40% by early 1997, with equity prices of financial institutions falling by even more, a cumulative 60 percent. Capital flows in 1996 were increasingly in the form of short-term debt as financial institutions and some corporates had difficulty obtaining longer maturity funding. Several large investments ran into difficulty obtaining financing as early as 1996, notably Alphatec, a large (about \$1 billion) semi-conductor investment with weak economic prospects. In early 1997, total private capital flows started to slow down, with bond issues and syndicated loans falling in the first half of 1997 to \$4 billion, compared to \$6.5 billion in the first half of 1996. Confidence in Thailand was further reduced by the default on a Eurobond issue of Somprasong Land.

External factors played a role in the build-up of pressures in 1996 and early-1997 through the cyclical slowdown in world trade, problems in the world semiconductor market, and the appreciation of the dollar vis-à-vis the yen. The sharp export slowdown in 1996 slowed down the asset price (especially property prices) inflation that had been underway for several years in Thailand. Credit rating agencies issued some warnings as early as mid-1996 and Moody's downgraded Thailand's short-term debt on September 4, 1996. Credit rating agencies put Thailand on notice for possible further review in early 1997 and on April 10, 1997 Moody downgraded Thailand to A3 from A2. IBCA, a credit rating agency for banks, however, did not change its ratings of Thai banks throughout this period, however, and as late as March 1997, it said it was maintaining the rating for the six leading Thai banks. And S&P reaffirmed its rating of Thailand as late as July 1997.

After periodic speculative attacks in 1996, the Thai Baht came under renewed pressure in late January and early February 1997. As before, the central bank was able to defend the currency through spot and forward sales and increases in interest rates. The market's expectations of an exchange rate devaluation had increased, however, both directly, as export growth was still minimal, and indirectly as it became less likely that the Bank of Thailand would sustain a prolonged period of high interest rates. The unwillingness, c.q. inability to adjust the exchange rate in the face of overwhelming perceptions of overvaluation in the Spring led, however, to a decline in official foreign exchange reserves, required a hefty increase in interest rates and postponed any beneficial impact on the export sector. Similarly, the unwillingness to tackle the weaknesses in the financial system, and the lack of transparency on the extent of the problem, compounded difficulties and led to negative reaction on the part of markets.

In May, the pressure on the currency reemerged in full force and the government had to resort to using exchange controls to stem the loss of foreign exchange. Effectively, the authorities segmented on May 15 the resident and non-resident borrowings of Baht, driving a wedge between the local and offshore markets for Baht. However, the measure failed to restore confidence—they actually may have led to a greater loss of confidence, also as weaknesses in the financial sector mounted. These weaknesses in the financial system ultimately made the attack on the currency successful, because they precluded the Bank of Thailand from pursuing a high interest rate policy to defend the currency.

In the meantime, loan portfolios of banks and other finance companies continued to deteriorate in quality and increase in riskiness as property price increases stagnated, and asset-liability maturity and currency mismatches grew. Liquidity problems in many finance companies increased and the stock of liquidity support from the Bank of Thailand to finance companies amounted to about 10% of GDP in early August, with much of it accumulated during the period May-June. Concerns mounted about the delayed and weak policy responses on the part of the government in dealing with the financial sector weaknesses. In June and July, the Thai Baht again came under sustained pressure. On June 27, 1997 the Bank of Thailand closed 16 struggling finance companies, but markets considered this "too little, too late".

After losing another \$4 billion in foreign exchange reserves (making for a cumulative loss over January to July of \$12 billion), and incurring a \$23 billion forward position, the Thai authorities finally let the exchange float on July 2. The misalignment of the exchange rate, given the slowdown in exports and financial sector weaknesses, meant that the real exchange rate had to depreciate. The financial fragility implied that it was the nominal exchange rate that ultimately moved as the authorities had lost other degrees of freedom. And Thailand's large short-term indebtedness meant that, once the exchange rate moved, the exchange rate had to move substantially to equilibrate demand for foreign and domestic assets. The currency therefore immediately depreciated by about 10% against the dollar relative to May levels, and fell by another 8% in the following two weeks.

- **Other East Asian countries.** The Thailand crisis focused attention of markets on the vulnerability of other Southeast Asian countries, notably their macroeconomic conditions, weaknesses in their financial sectors, concerns about the political situation and commitment to reform, and their future prospects in general. Large, short-term maturity foreign exchange borrowings exposed several of the countries to "bank-runs" as problems in the financial and real sectors accumulated to too high levels for investors' comfort. As investors reassessed countries, in quick succession, Indonesia, Malaysia and the Philippines were drawn in as foreign and domestic investors rebalanced positions. Unlike Thailand, the other Southeast Asian countries stopped intervening relatively quickly and abandoned their (implicit) exchange rate peg or band in the face of foreign exchange losses. Philippines floated its currency on July 12. Indonesia initially widened its band from 8% to 12% immediately following the float of the Philippines peso and then floated the currency on August 14 in the face of some foreign exchange losses. Malaysia stopped defending its exchange rate in mid-July after some foreign exchange losses. Taiwan stopped intervening to support its exchange rate on October 17 and its currency depreciated by about 7% in the following weeks. Singapore and Hong Kong also came under pressure, with Hong Kong successfully fighting off attacks on its pegged exchange rate by speculators while Singapore let its currency depreciate (Table IV.1).



**Table IV.1 Exchange Rates and Stock Prices for East Asian,  
Latin American and other Countries  
(1997, % changes)**

	<i>Stock Market (Jan-June)</i>	<i>Stock Market (July- Dec)</i>	<i>Exchange Rate (July-Dec)</i>
<b>East Asia</b>			
Indonesia	14	-45	-122
Malaysia	-13	-45	-53
Philippines	-11	-34	-50
Thailand	-37	-29	-93
China	36	-17	0
Korea	14	-51	-80
<b>Latin America</b>			
Argentina	25	-16	0
Brazil	79	-22	-4
Chile	10	-16	-6
Colombia	23	19	-19
Mexico	33	16	-2
Peru	40	-13	-3
Venezuela	36	-9	-3
<b>Others</b>			
India	31	-15	-9
South Africa	11	-16	-7
Czech Republic	-9	0	-7
Turkey	65	54	-39
Russia	129	-3	-3

Stock markets fell sharply in all East Asian countries throughout the fall of 1997. Although Thailand posted initially modest gains in the wake of the initial devaluation, the Thai stock market fell further and was at a record low at the end of 1997 (in dollar terms more than 80% lower than the peak reached in early 1996). The other Southeast countries suffered somewhat lower declines in their stock markets, with drops in dollar terms as of end 1997 of between 50% and 60% for the Philippines, Indonesia and Malaysia since early-1996. Malaysia announced the establishment of a large fund to support the stock market, but this did little to support the markets (and was scaled back substantially later).

After moving to floating exchange rates, governments in all countries tightened domestic liquidity. The most stringent response came from Bank Indonesia, which imposed very tight liquidity for several weeks (including through moving about Rupiah 10 trillion (about 10% of reserve money) of state enterprise deposits from commercial banks to the central bank) and closed the discount window. Overnight interest rates were in excess of 100% during the second half of August, but eased later to about 35%, and the discount window was (selectively) reopened. In the case of the Philippines, the increase was less, but interest rates rose above 25% after reserve requirements were raised in late August. Later in the year, interest rates in the Philippines fell somewhat. In Thailand interest rates were about 20% in late fall. Malaysia was the exception, as it did not raise interest rates very much and rates continued to be in the range of 7.5% - 8% during most of the fall.

All four countries introduced new restrictions on foreign exchange transactions by attempting to deny speculators the domestic credit needed to establish a net short domestic currency position. As noted, the Thai authorities limited the sale of Baht for dollars to nonresidents in the spot foreign exchange market for speculative purposes in May. In the Philippines, the central bank prohibited local banks from engaging in forward contracts with offshore banks for a period of three months. In Malaysia, authorities imposed restrictions on the sale of ringgit to nonresidents other than for commercial reasons. It temporarily prohibited short sales in the stock market, but was forced to lift this restriction in the wake of large sell-offs by foreign investors. In Indonesia, banks were prohibited to extend credit to nonresidents for swap transactions. In January 1997, the Thai authorities eliminated the restrictions and thus unified the on-shore and offshore markets for Baht.

**- Korea and other countries.** Spillover effects were not limited to Southeast Asia. The stock market in the US and some emerging markets were negatively affected by news from Asia. On Oct. 23, the Australian dollar fell by 11 percent, and on Oct. 27, following weak markets in Hong Kong and the rest of Asia, the Dow Jones Industrial average dropped 554 points (7 percent), its largest absolute point drop ever. Vulnerable emerging markets outside the region, including Argentina, Brazil, Mexico and Russia also came under pressures and needed to increase local interest rates to support their currency and take steps to reduce risks. In October, Korea was affected by the crisis as it lost market confidence and was no longer able to attract sufficient amounts of new credits and roll-over its existing obligations.

This foreign exchange liquidity crunch followed a year in which bankruptcies of Korean chaebols had mounted, starting with the default of Hanbo in January 1997, and followed by Kia Motors and Sammi Steel. The defaults were the result of low profitability for several years. Korean companies' profit margins had been shrinking for several years, as Korean chaebols had been on ambitious expansion and diversification drives without regard for economic profitability (the profit margin (profit over sales) for the top 30 chaebols in 1996 was only 0.2%). This included numerous overseas investment projects and a concerted drive into the electronic and semiconductor sectors in both domestic markets and in emerging markets of East Asia, the former Soviet Union and Eastern Europe. The number of overseas investment projects rose to well over 2000 projects per year and Korean outward FDI amounted to about \$2.5 billion in 1996. Low profitability forced chaebols to borrow, from both domestic and foreign sources, in order to maintain operations. For example, debt obligations in the manufacturing sector accounted for over 47% of total assets and the average debt equity ratio was over 300% by the end of 1996. Key corporate financial ratios deteriorated further in 1997.

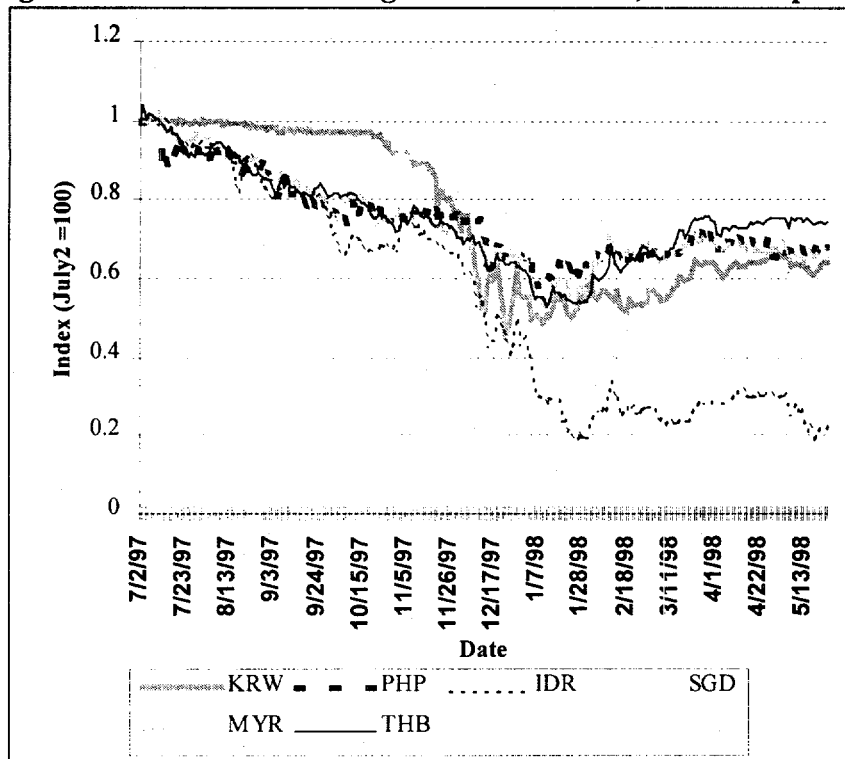
Following the inability of domestic banks to rollover short-term external debts in October, the Korean won depreciated by about 85% in a two-month period and real interest rates rose to about 30%. The country faced an extraordinary liquidity crunch arising from the scale of short-debt falling due and the difficulties in rolling over this debt. More than half of Korea's external debt was short-debt, of which about \$20 billion fell due in the last two months of 1997. As for the other East Asian countries, the lack of willingness among foreign creditors to extend new credit stemmed from the concerns over the health of Korea's financial systems and the

strength and competitiveness of its industrial sector. Political uncertainty related to presidential elections in December added to investors' concerns

The extent of the fallout of the Thai Baht crisis was surprisingly large, as there are substantial differences among countries. The size of the current account deficits and the degree of short-term funding differed among the countries, with Thailand standing out as having a very skewed funding structure. Reserve cushions and external debt ratios also differed substantially. In terms of export performance, there were substantial differences. The degree of weaknesses in the financial systems also differed with Thailand more extreme in terms of the size of the lending boom, the currency and maturity mismatch of lending, and the concentration of the banking portfolio in the real estate sector. In other countries, notably the Philippines, the magnitude and duration of the lending boom had been smaller. In Indonesia and Malaysia there was much less recourse by the financial sector to short-term external borrowing to expand lending (in Indonesia lending by corporates was large, however). However, increased lending for real estate was a common feature of all the countries. There were also differences in the speed and consistency of policy responses. While the tight liquidity conditions put pressures on many of the region's financial institutions, only Thailand provided extensive liquidity support to ailing banks and corporates on a large scale prior to the crisis.

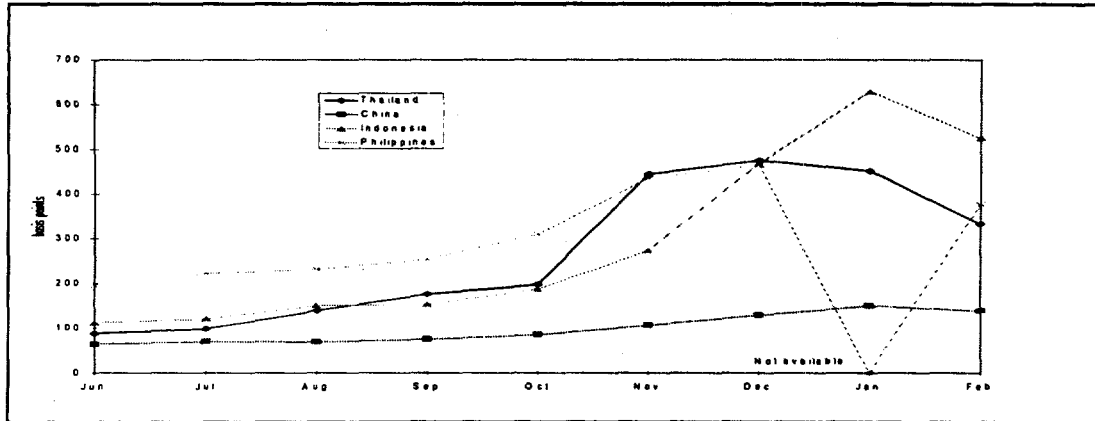
- **Large comovement in asset prices.** Lack of similarities notwithstanding, there has been considerable comovement in asset prices across the region. Exchange rates have been under similar pressure in all countries. Figure IV.1 provides the movement in exchange rates for the four South East Asian countries and Korea. The figure shows that Malaysia, the Philippines, and Thailand experienced simultaneously large exchange rates depreciations. In case of Indonesia, the decline of the exchange rate was even more severe, while in case of Korea exchange rate declines started in October and was very large in November and December. Declines were much less strong in case of Taiwan (ROC) and Singapore and even less for China and Hong Kong. But nevertheless, correlations between movements in exchange rates of the four Southeast Asian countries during the period August-February were very high and even higher in the period October to early January. Since mid-January, there has been less of comovement in exchange rates as the Malaysia ringgit, the Korean won and the Thai Baht have appreciated somewhat while the Indonesian rupiah has further depreciated.

**Figure IV.1 Index of exchange rate movements, June 97-April 98**



Secondary market spreads on sovereign bonds saw very similar and simultaneous movements for most East Asian countries during this period. While until July spreads for most East Asian countries had been close to 100 basis points, with the exception of the Philippines which was closer to 200 basis points, in the Fall spreads for East Asian countries rose simultaneously very sharply (Figure IV.2). In case of Indonesia, the spread rose to more than 600 basis points in December, while spreads for the Philippines and Thailand rose above 400 basis points. Since then spreads have declined, and were in April 1998 about 300 basis points for Malaysia, the Philippines and Thailand and 350 basis points for Korea. Country differences have also become more pronounced. In case of Indonesia, the spread fell somewhat in late 1997, but has since increased to about 750 basis points, and was in April 1998 about 530 basis points.

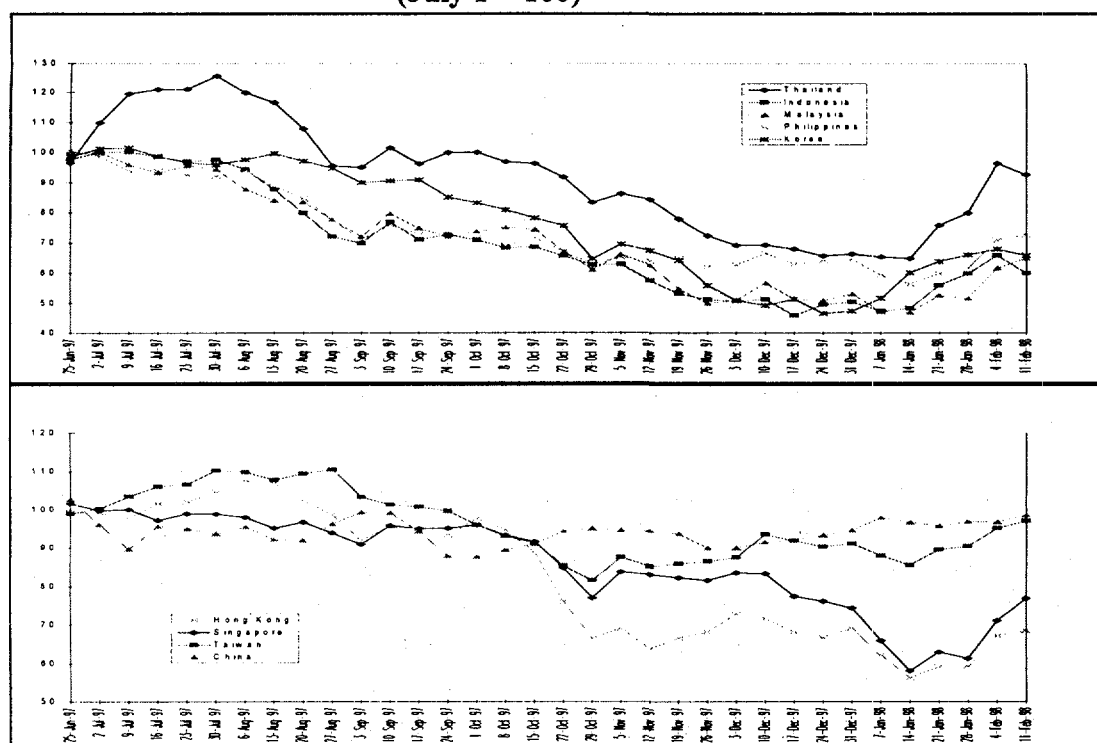
**Figure IV.2 Secondary market spreads on sovereign debt  
(June 1997 - February 1998)**



Source: Bloomberg

Prior to the crisis, stock markets among South East Asian countries did not show extraordinary comovement. As noted, the stock price in Thailand had more or less monotonously experienced a decline since January 1996, cumulating to a loss of about 65% in real local currency terms by June 1997. Between January and June 1997, the Philippines and Malaysia had also experienced a decline in their stock markets, but of smaller magnitude, while Indonesia and Korea still registered increases in their stock markets of about 10%. Following the July 2 Thai crisis, the Thailand stock market initially rebounded strong, with a 25% increase in July. In the rest of East Asia, stock prices declined modestly during July. The comovement among stock prices in the region increased greatly, however, in August, as stock prices in South East Asian countries fell by about 25% and prices in Korea and Hong Kong declined (Figure IV.3). September saw a period of consolidation, with little change in stock prices across the region. During the period from mid-November to mid-January stock market declines continued in East Asia, with the exception of China and Taiwan (ROC).

**Figure IV.3 Real local stock prices: July 1997 - February 1998  
(July 1 = 100)**



Source: IFC, Emerging Markets DataBase

Note: Stock prices in local currency have been deflated by using CPI-indexes.

Between mid-January and April 1998 markets rebounded strongly in most East Asian countries, with gains in domestic currency between 30% to 43%, and even more in dollar terms. The exception has been Indonesia, where, after an initial gain, prices fell sharply after early February. Cumulative over the period since July 2, 1997 to mid-February, however, stock markets in East Asia have in local currency terms declined between 23% (the Philippines) and 44% (Korea). The exceptions have been China and Taiwan, ROC.

Reflecting the strong comovement during certain periods, correlations between stock prices in East Asia and in other emerging markets were at times very high. While before July 2, the average correlation among 22 major emerging markets was about 10%, during the crisis period the average correlation increased to about 20% over the period July 1997 to February 1998. During the October to mid-November period, correlations among these 22 emerging markets were on average close to 30%, and within regions correlations among stock prices were even higher. Between the Philippines and Malaysia, for example, the correlation was 16% in the year before the crises, but rose to 29% during the crisis, and was 59% during the October to mid-November period. In case of Argentina and Brazil, the correlation was 44% in the year before the crises, but rose to 75% during the crisis, and was 84% during the October to mid-November period.

- **Contagion or similarity in changes in fundamentals?** Whether or not these large comovements in asset prices reflect contagion, that is pure spillover, or are in part due to similarities in changes in underlying fundamentals is difficult to tell (see further Valdes, 1996). Asset prices reflect market expectations of future real returns, which depends on expectations about fundamental economic variables and the market perception of risks and its willingness to absorb risk. Both expected fundamentals and risks have likely changed in similar ways for all East Asian countries during this period due to a number of factors: the trade linkages between countries meant that declines in demand or imports in one country led to decline in exports in other countries. The competitiveness of one country was affected as a result of exchange rate depreciation of other countries ("competitive devaluations"), thus negatively affecting future exports prospects. Financial linkages between two countries, including through FDI, bank lending, and capital market activities, meant that events in one country have negatively affected another country (see Calvo and Reinhart, 1995, for evidence for Latin America). Countries may have been affected by the occurrence of a similar external shock (e.g., global economic slowdown or events in Japan). And events in one country may have led market participants to revise their model of development more broadly, and thus have affected asset prices in a larger group of countries.

Some positive correlation between asset prices can thus be expected and does not "prove" contagion. One needs to define "normal" and "excessive" correlations, where normal is based on some "model" which relates to fundamentals and risk perceptions and preferences. Many of these fundamentals are difficult to capture, however, particular in a rapidly changing environment. There are nevertheless some indicators where one may expect that differences in fundamentals will show up. One indication is whether declines in aggregate stock markets depend on the sectoral composition of listed stocks. Specifically, one would expect stock markets dominated by firms producing tradables to have declined less than stock markets dominated by nontradables, particularly stocks of financial institutions, since the currency depreciations should have led to an increased foreign demand for tradables, but not for nontradables. To the degree that this is the case, it would provide some evidence for rational discrimination between markets by investors, and thus argue against simple contagion. Likewise, if declines in asset prices can be differentiated by risk factors between countries, e.g., the degree of external indebtedness, some indirect evidence exist that markets act rationally.

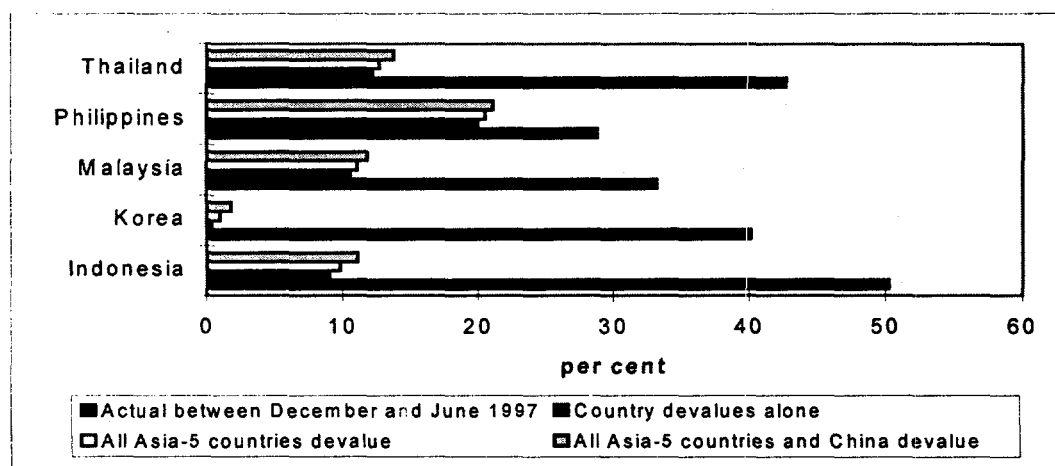
A full-fledged analysis still remains to be done (see Kaminsky and Schmukler 1998, for some initial results). Evidence to date suggests, however, that there have been periods of excessive comovement, particularly in the October to mid-November period. Cline and Barnes (1997) observe, for example, that the run-up in spreads in late October for emerging markets was beyond what could be explained by historical relationships. While the average spread for 14 emerging markets economies stood at about 260 basis points at the end of October, this was above the level predicted by the 1992-96 statistical relationship of spreads to economic variables. In other periods, it appears that markets did discriminate between countries depending on risk factors and perceptions about commitments to reform. Spreads declined considerably for Korea, for example, following the deepening of its reform program with the IMF in late December and early January, while they rose for Indonesia.

Trade linkages between countries in the region can explain some, but not all of the comovements. Intra-regional exports among East Asian countries accounted for almost 40% of total exports in 1996, up from 31.7% in 1990. If Japan is included the figure rises to 51%. These high levels of intra-regional trade may have tended to increase the speed and directness of contagion as a drop in demand for imports in one East Asian country triggered declines in demand in exports from other countries. While these effects may have been large, the exact magnitude of these effects can, however, only be ascertained through a full econometric model of demand and supply of trade. Changes in countries' competitiveness vis-à-vis third markets as a result of the depreciations (competitive devaluations) appear, in contrast, less likely to have played a large role in causing contagion (see Box VI.1).

#### Box IV.1 Competitive Devaluations: An Unlikely Cause for Contagion

If the East Asian countries compete in the same export markets, a devaluation of one currency will put competitive pressures on other currencies, which then may be forced to devalue as well to restore their competitiveness. Can the successive competitive devaluations explain the sharp depreciation of the currencies? The answer seems to be no. We calculate the realignment of East Asian currencies versus the dollar necessary to restore the real exchange rate to its level of June 1995, under two scenarios: one, that the country devalues alone, and the real competitive exchange rate versus the dollar of all other countries remains unchanged; two, that all the five East Asian countries affected by the crisis devalue simultaneously. Box figure 1 presents the results of our calculations. If each country devalues alone, the required depreciations vary between 10 and 20 per cent. If all five affected countries devalue at the same time, required depreciations increase only by one half to one-percentage points. The difference between the two scenarios is thus relatively small, and competitive devaluations appear insufficient to explain actual depreciations.

**Box Figure 1. Actual depreciation versus the dollar, and depreciation needed to bring the real exchange rate back to its June 1995 level under different assumptions**



## V. Why Has the Crisis Been So Protracted?

The crisis has been deeper and wider than many had anticipated. Until early in the Fall, that is after the Thailand crisis had erupted, most observers still predicted relatively robust growth for most of the region. The consensus forecast (the average of monthly economic forecast from 25 economic institutions) until October for GDP growth in developing South East Asian countries was still above 5%. Since then, growth forecasts have been drastically lowered.



Consensus forecast for GDP-growth for Korea, for example, fell sharply in a matter of months, from 6.2% in October to 1.8% in December and -0.1% in January. Financial markets neither anticipated events. Credit ratings for almost all sovereign claims on East Asian countries in June 1997 were the same a year earlier and Thailand was still able to borrow at 90 basis points over 10-year US Treasuries only a few months before its crisis erupted. On July 1, 1997, spreads for East Asian countries over 10-year US Treasuries varied between 55 basis points (Korea) and 90 basis points (Hong Kong). Credit rating agencies only started to downgrade countries late in the fall, weeks after the crisis had erupted. Korea was downgraded very sharply in a very short period of time: on October it was rated AA- while on December 22 it was downgraded to below investment grade status, or down-graded five notches in a period of two months. After July, spreads rose sharply and were for example, 350 basis points for Thailand in early March 1998, falling to 280 basis points in April.

As confidence in the region fell, foreign investors adopted a wait-and-see approach for most countries—given uncertainties on short-term prospects and lack of conviction on their part on improvements in fundamentals and policy measures. External financing was sharply reduced and foreign lenders were even unwilling to rollover short-term loans for trade financing. The financing gap was partly filled by official financing, but most of the adjustment came from sharp contractions in imports. In case of Korea, trade deficits turned around sharply, to surpluses of about \$3 billion in each month between December and April, largely due to a sharp contraction in imports. Since many corporates and banks were unhedged, there was an increased demand for foreign exchange as these institutions tried to cover open positions in anticipation of further depreciation and currency volatility. These factors created perceptions of further currency declines, thus increasing incentives for buying foreign exchange soon, and validating and aggravating the currency declines. Because large declines in currencies and tight liquidity impaired the balance sheets of both corporates and banks, credit risks increased and downward spirals and continued weaknesses in exchange rates and stock prices resulted in almost all countries. In early 1998, the situation stabilized somewhat, and most exchange rates recovered from their 1997 lows, reflecting reform progress, especially in Korea and Thailand.

Compared to other recent financial crises, for example, the 1994/5 Mexico crisis, the current crisis in East Asia has thus been much more protracted. In case of Mexico, private flows recovered in 6 months to about the same level as prior to the crisis. This does not appear to be the case for any of the East Asian countries. Figures on bond and other capital markets' instruments show that private flows have virtually come to a standstill. Stock markets have also fallen much deeper than in case of the Mexico crisis. East Asian countries' stock markets amplitude and severity of stock markets' boom and bust cycle had in the past been less than that of emerging markets in Latin America, and only slightly more pronounced than those in G7 countries (Kaminsky and Schmukler, 1998). In contrast, the drop in stock prices (in dollar terms) since July 1997 has been much more pronounced than in any previous downturn in East Asia, and even exceeds that of downturns in most Latin American countries following the Tequila crisis. This protracted crisis appears due to two reasons: the structural nature of problems and associated coordination issues; and the high leverage of corporates and the associated large private sector, external exposures.

- **Structural nature of problems and coordination issues.** The events in East Asia have highlighted the nature of macro-financial crises in a financially more integrated world. An important dimension of avoiding a financial crisis—and of recovering from them—becomes the preservation of investor confidence. Investors, in turn, are focusing not only on sound macroeconomic fundamentals but also on the strength of the financial system, on corporate governance and competition policy, and on a variety of other structural factors, which underpin country economic performance. This has been especially so for East Asia, which difficulties do not stem from poor macro-fundamentals, but rather from structural deficiencies in the financial and corporate sectors.

One implication of this change is that in the immediate aftermath of a financial crisis, countries are expected to launch a program comprising both macroeconomic stabilization and structural reforms. Indeed, in the recent cases in East Asia, the structural measures announced in the post-crisis packages which are expected to be implemented over the next few years, have been as important as the traditional macroeconomic elements in efforts to restore market confidence. This emphasis on programs of structural reforms, compared to only macro-economic stabilization, has had a number of important implications. First, a set of fully articulated structural reforms is difficult to design in the middle of a financial crisis, and the political and economic consensus regarding the set of reforms might be difficult to achieve quickly. Second, the structural reform agenda will take several years to implement, and results may take even more time. And third, progress in implementing structural issues will be more difficult to observe and assess.

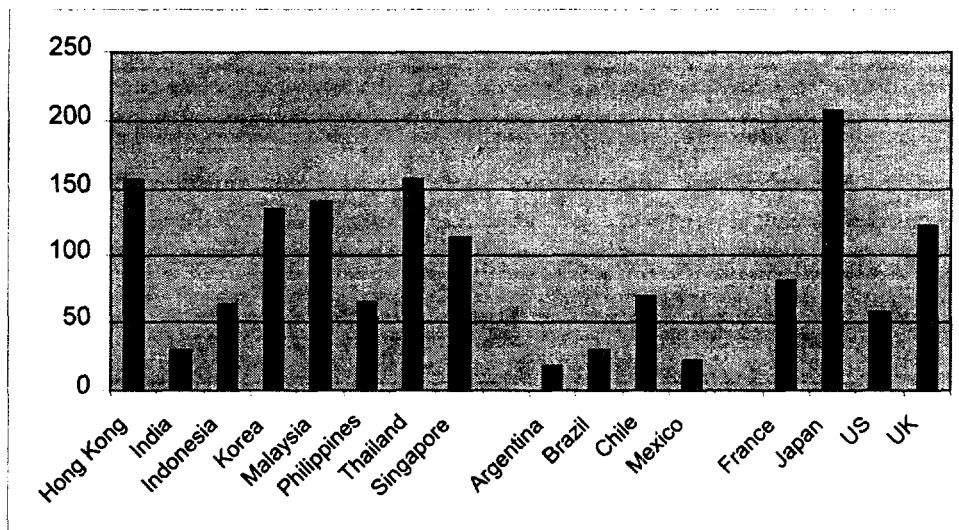
As a result, while structural issues have been squarely part of the programs to restore external investors' confidence from the very start, the market has had great difficulty assessing the commitment of the government to these measures and to judge the future impact of actual policies and decisions taken, particularly during the first phase of crisis management. When the importance of structural issues is combined with a diversified structure of external financing—both on the creditor and debtor side—the potential for coordination problems among creditors has been large. In case of East Asia—and for other emerging markets, there is much more creditor and debtor diversity than was the case in other situations. During the developing countries' debt servicing problems of the mid-1980s, for example, all creditor banks were linked to each other by cross-default clauses, making coordination among creditors relatively easy. Cross-default clauses are not used for lending to a diverse set of corporates and financial institutions. And whereas in case of Mexico's 1995 financial crisis, creditors had to mainly inform themselves about fiscal and aggregate macro-economic performance, in case of the East Asian countries prospects for individual financial institutions and corporates have mattered importantly.

**High leverage.** Financial depth is high in East Asia as good macro-fundamentals encouraged household savings, most of that were intermediated through the domestic banking systems. In contrast, in other financial crises, domestic financial intermediation was low, e.g., in Mexico domestic credit to GDP was less than 20% in 1996 and in Argentina less than 15%. This meant that declines in asset prices had more severe effects on domestic financial intermediation and that business cycle effects were more severe in the East Asian countries compared with

countries with low levels of financial intermediation. Furthermore, in other financial crises, corporates had already adjusted themselves to less external financing from domestic financial institutions. In Mexico, for example, many corporates, especially export-oriented firms had developed relationships with foreign capital suppliers and were thus less affected by the problems in Mexico's financial sector following the 1995 crisis. This was generally not the case in East Asia.

The high level of domestic financial institutions, combined with biases in the financial systems and culture against equity financing and in favor of debt financing, meant that many firms in East Asia have been highly leveraged. The debt equity ratio of Korean corporates, for example, was almost 450%% by the end of 1996, three time the US ratio, and more than five times the Taiwanese ratio (Table V.1). The top 30 Korean chaebols had even higher leverage, on average more than 500% in 1996. Correspondingly, interest burdens are very high in East Asian countries. In Korea, for example, the interest-expenses-to-sales ratio of all manufacturing corporations in 1995 was about 6%, compared to 2% for Taiwan and 1% for Japan. Furthermore, and reflective of a high expansion rate, East Asian corporates have relatively little liquid assets. Korean corporates, for example, had a ratio of liquid assets to short term debts of less 100% in 1996. This can be compared to ratios of 150% for the US and about 130% for Japan and Taiwan. Liquidity and interest rate shocks thus greatly affect East Asian corporates.

**Figure V.1 Domestic Credit to GDP  
(1996, percent)**



**Table V.1 Comparison of Financial Ratios of Manufacturing Companies**

	<i>Korea (1996)</i>	<i>Korea (1997)</i>	<i>Germany (1995)</i>	<i>USA (1995)</i>	<i>Japan (1995)</i>	<i>Taiwan (1995)</i>
Debt/Equity	332.7	449.4	175	159.7	206.3	85.7

Source: OECD, *Financial Statements of Non-financial Enterprises*.

The high leverage means that small shocks to interest rates of operational cash flow of corporates will greatly affect their ability to service debts. As an illustration of this, we use a sample of 300 firms listed at the Stock Exchange of Thailand (SET). Table V.2 shows the high leverage of Thai firms and their deteriorating profitability. It also shows the ratios of earnings before interest and taxes to total interest expenses and the number of Thai firms that were not able to service their debts in full from their operating income. The number of these firms rose from 18 in 1994 to 114 in 1997 and the percent of total loans represented by these firms rose about 1.4% to 36.4%, i.e., for about one-third of loans, interest expenses could not be fully covered in 1997 from operating income and had to be rolled-over and financed from new loans. With the high leverage, even a small increase in interest rates and decline in profitability have thus led to a large number of firms running into debt servicing and liquidity problems, which in turn has negatively affected output.

**Table V.2: Deteriorating Corporate Performance**

Period	Number of Firms	Leverage	Profits over Liabilities	Profits over Interest Expenses	No of firms with Profits < Interest Expenses	Loans of Firms with Profits < Interest Expenses (%)
1997:Q4	356	2.95	7.3	1.49	114	36.4
1997:Q3	356	2.95	10.2	2.59	83	30.8
1997:Q2	357	2.12	N/A.	3.18	71	18.4
1997:Q1	353	2.01	N/A.	3.66	54	16.2
1996:Q4	354	1.90	14.9	3.11	49	11.8
1995:Q4	354	1.67	18.1	4.01	34	7.6
1994:Q4	352	1.50	24.0	5.78	18	1.4

Notes: Profit is defined as earnings before interest, taxes, and depreciation and amortization (EBITDA). Leverage is debt over equity.

Source: SET database.

## **VI. Conclusions**

It is clear that the crisis in East Asia has been very different from the debt crisis of the 1980s or even the Mexican peso crisis of 1994-95. While the views on what caused the crisis and its implications will continue to churn, this paper draws two preliminary conclusions on the diagnosis of the problem and why its impact has been so severe in East Asia.

First, the crisis occurred because the economies did not have the institutional and regulatory structures to cope with increasingly integrated capital markets. The immediate source of the problems was private sector decisions, both on the part of borrowers in East Asia and on the part of lenders. But these decisions were taken in the context of government policies that created incentives for risky behavior while simultaneously exerting little regulatory authority and not encouraging enough transparency to allow the market to recognize and correct the problems. Under-supervised financial sectors allowed poorly governed corporations to invest borrowed money in highly inflated or risky assets such as real estate ventures. A lack of transparency—in the form of unreported mutual guarantees, lack of disclosure of companies' and banks' true net positions, and insider relations—masked these poor investments, and meant that once a downturn began it was difficult to separate good and bad firms. These domestic weaknesses were aggravated by undisciplined foreign lending. The problem was not so much overall indebtedness, but the composition of debt, with a buildup of short-term unhedged debt leaving the economies vulnerable to a sudden loss of confidence.

Second, these same underlying factors have meant that the economic and social impact of the crisis has been more severe than some anticipated. The loss of confidence had an immediate and large impact on private demand—both investment and consumption—which in the short run could not be offset by net external demand. Financial institutions and corporates have been more severely affected in East Asia in the aftermath of the crisis because of the very high degree of leverage (two to three times that of Latin America), and the unhedged and short-term nature of foreign liabilities. This, in turn, has resulted in a severe external and domestic liquidity crunch. Political uncertainties have also played a role, but the erosion of confidence has also undermined political stability. Domestic recession, financial and corporate distress, liquidity constraints and political uncertainty have been self-reinforcing, leading to a severe downturn.

Although the situation appears to be stabilizing (with the exception of Indonesia), the impact of the crisis will be long lasting, in part because countries lack the necessary mechanisms for financial and corporate restructuring, including both the legal and institutional underpinnings. On the social side, safety nets are also lacking since countries relied on rapid growth and employment to provide social security for its citizens. Hence the social costs of this crisis will be large, in terms of unemployment and impact on the poor. Despite significant gains in the reduction of absolute poverty, in Thailand, and even to a larger degree in Indonesia, there is a large segment of the population living just above the poverty line. It is this group that is especially vulnerable to the impact of the crisis.

The East Asia crisis has highlighted two important sources of vulnerability in the early stages of financial integration: the rapid buildup of contingent liabilities and the risks of

excessive reliance on short-term borrowing. Although their magnitude was not known precisely, contingent liabilities were building up in the system as a result of various weakness. Together with other fundamentals, contingent liabilities determine the sustainability of exchange rate regimes. At some time, the market may test the size of this liability by putting pressure on the exchange rate. Vulnerability in the financial position—for instance reflected in the ratio of short-term debt to reserves—will increase the likelihood of such attacks. If the defense of the exchange rate is not credible, large exchange rate devaluation and high interest rates can trigger a downward spiral leading potentially to even larger contingent liabilities and, at least temporarily, to a bad equilibrium.

## References

- Akerlof, George and Paul Romer, 1993, "Looting the Economic Underworld of Bankruptcy for Profit". Brookings Papers on Economic Activity, 2:1-73, 1993.
- Asian Development Bank and World Bank, 1998, "Managing Global Financial Integration In Asia: Emerging Lessons and Prospective Challenges," March 10-12, 1998
- Bhattacharya, Amar, Swati Ghosh and Jos Jansen, 1998, "Has the Emergence of China Hurt Asian Exports?", Mimeo, World Bank.
- Blanchard, Olivier and Mark Watson, 1982, "Bubbles, Rational Expectations and Financial Markets", in Paul Wachtel (ed.) Crises in the Economic and Financial Structure (Lexington Books)
- Calvo, Sara, and Carmen Reinhart, 1995, "Capital Flows to Latin America: Is There Evidence of Contagion Effects?," unpublished manuscript, The World Bank - International Monetary Fund.
- Claessens, Stijn and Thomas Glaessner, 1997, Are Financial Sector Weaknesses Undermining the East Asian Miracle, Directions in Development, World Bank, September.
- Claessens, Stijn and Thomas Glaessner, 1998, "Internationalization of financial services in Asia," working paper, No. 1911, World Bank.
- Corsetti, Giancarlo, Paolo Pesenti and Nouriel Roubini, 1998, "What Caused the Asian Currency and Financial Crisis?," mimeo, New York University.
- Diamond, and Dybvig, 1983, "Bank runs, deposit insurance, and liquidity," Journal of Political Economy, 91:401-19 June.
- Eichengreen, Barry, and Ashoka Mody, 1998, "What Explains Changing Spreads on Emerging-Market Debt: Fundamentals or Market Sentiment?," mimeo, IMF and World Bank, paper prepared for NBER-conference *Capital Inflows to Emerging Markets*
- Feldstein, Martin, 1998, "Refocusing the IMF", Foreign Affairs, 77:20-33, March/April, 1998.
- IMF, 1997, *World Economic Outlook*, December, Washington DC.
- Kawai, Masahiro and Kentaro Iwatsubo, 1998, "The Thai Financial System and the Baht Crisis: Processes, Causes and Lessons," mimeo, Institute of Social Science, University of Tokyo.
- Kaminsky, Graciela, and Carmen Reinhart, 1996, "The Twin Crises: The Causes of Banking and Balance of Payments Problems," unpublished paper, Federal Reserve Board.

- Kaminsky, Graciela and Sergio Schmukler, 1998, "On Booms and Crashes: Is Asia Different?," mimeo, World Bank and Board of Governors of the Federal Reserve System.
- Krugman, Paul, 1979, "A Model of Balance of Payments Crises," Journal of Money, Credit and Banking, IV. 11. pp. 311-325.
- Krugman, 1998, "Fire-Sale FDI", mimeo, MIT, paper prepared for NBER-conference *Capital Inflows to Emerging Markets*.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1997, "Legal Determinants of External Finance." Journal of Finance, Vol. LII, Number 3, July.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1998, "Law and Finance." Journal of Political Economy; forthcoming.
- Miller, Marcus, and Zhang, 1997, "Sovereign Liquidity Crises: The Strategic Case for a Payments Standstill", November, mimeo, University of Warwick.
- McKinnon, Ronald I. and Huw Pill, 1997, "Credible Liberalizations and International Capital Flows: The Over-Borrowing Syndrome", American Economic Review, Papers and Proceedings, 87, No. 2:189-93, May.
- Montes, Manuel F., 1998, "The Currency Crisis in South East Asia" Published by Institute of South East Asian Studies.
- Obstfeld, Maurice, 1986, "Rational and Self-Fulfilling Balance of Payments Crises," American Economic Review, IV.76. pp. 72-81.
- Obstfeld, Maurice, 1996, "Models of Currency Crises with Self-Fulfilling Features," European Economic Review.
- Ramos, Roy, 1997a, "Asian Banks at Risk: Solidity, Fragility", September, Banking Research. Goldman Sachs.
- \_\_\_\_\_, 1997b, "1998: Issues and Outlook: Cyclical Slowdowns, Structural Ills and the Odds for Recovery", December, Goldman Sachs, Banking Research.
- Radelet, Steven and Jeffrey Sachs, 1998a, "The Onset of the East Asian Financial Crisis," (updated: March 30, 1998).
- Radelet, Steven and Jeffrey Sachs, 1998b, "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects," Brookings Papers on Economic Activity, Panel, Washington, D.C., March 26-27, 1998.



- Sachs, Jeffrey, 1994a, "Russia's Struggle with Stabilization: Conceptual Issues and Evidence." in Michael Bruno and Boris Pleskovic, (Eds), Proceedings of the Annual Conference on Development Economics, 57-80, World Bank, Washington, DC.
- Sachs, Jeffrey, 1994b, "Beyond Bretton Woods: A New Blueprint." in The Economist (U.K.); 333:23, 25, 27 October 1-7.
- Sachs, Jeffrey, Aaron Tornell, and Andres Velasco, 1996, "Financial Crises in Emerging Markets: The Lessons from 1995," Brookings Papers in Economic Activity, pp.147-215.
- World Bank, 1997, Private Capital Flows to Developing Countries, Washington, DC.
- World Bank, 1998, Global Development Finance, Washington, DC.

# Policy Research Working Paper Series

Title	Author	Date	Contact for paper
WPS1993 Financial Safety Nets and Incentive Structures in Latin America	Philip L. Brock	October 1998	K. Labrie 38256
WPS1994 Estimating Wealth Effects without Expenditure Data -- or Tears: with an Application to Educational Enrollments in States of India	Deon Filmer Lant Pritchett	October 1998	S. Fallon 38009
WPS1995 What Macroeconomic Policies Are "Sound?"	Mansoor Dailami Nadeem ul Haque	October 1998	B. Nedrow 31585
WPS1996 Namibia's Social Safety Net: Issues and Options for Reform	Kalinidhi Subbarao	October 1998	P. Lizarondo 87199
WPS1997 On Measuring Literacy	Kaushik Basu James E. Foster	October 1998	M. Mason 30809
WPS1998 The Structure and Determinants of Inequality and Poverty Reduction in Ghana, 1988-92	Sudharshan Canagarajah Dipak Mazumdar Xiao Ye	October 1998	A. Garscadden 38400
WPS1999 Heterogeneity among Mexico's Micro-Enterprises: An Application of Factor and Cluster Analysis	Wendy V. Cunningham William F. Maloney	October 1998	T. Gomez 32127
WPS2000 GATT Experience with Safeguards: Making Economic and Political Sense of the Possibilities that the GATT Allows to Restrict Imports	J. Michael Finger	October 1998	L. Tabada 36896
WPS2001 Measuring the Dynamic Gains from Trade	Romain Wacziarg	November 1998	S. Crow 30763
WPS2002 Accounting for Toxicity Risks in Pollution Control: Does It Matter?	Susmita Dasgupta Benoît Laplante Craig Meisner	November 1998	Y. D'Souza 31449
WPS2003 Thailand's Corporate Financing and Governance Structures	Pedro Alba Stijn Claessens Simeon Djankov	November 1998	R. Vo 33722
WPS2004 What Can Be Expected from African Regional Trade Arrangements? Some Empirical Evidence	Alexander Yeats	November 1998	L. Tabada 36896
WPS2005 Fiscal Federalism and Macroeconomic Governance: For Better or For Worse?	Anwar Shah	November 1998	S. Valle 84493
WPS2006 Household Welfare Measurement and the Pricing of Basic Services	Jesko Hentschel Peter Lanjouw	November 1998	PREM 87736

**Policy Research Working Paper Series**

<b>Title</b>	<b>Author</b>	<b>Date</b>	<b>Contact for paper</b>
WPS2007 Regional Integration Arrangements: Static Economic theory, Quantitative Findings, and Policy Guidelines	Dean A. DeRosa	November 1998	L. Tabada 36896